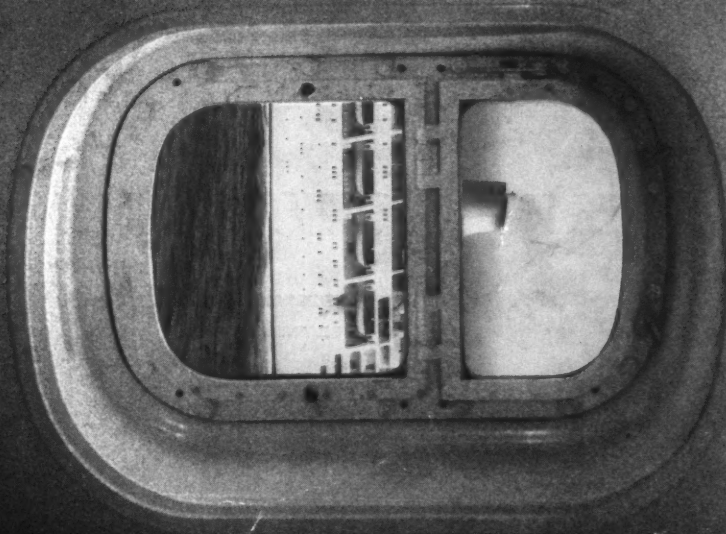
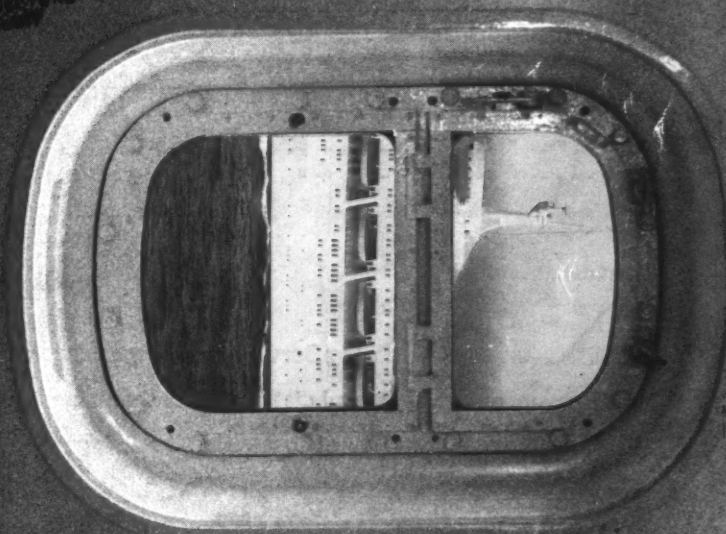
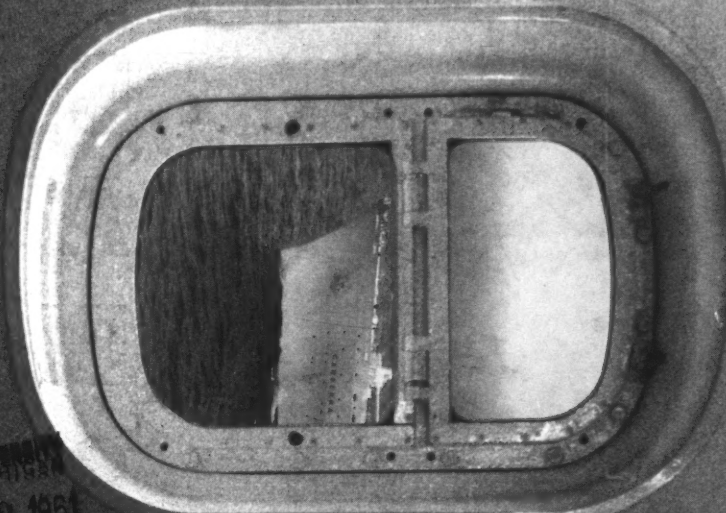
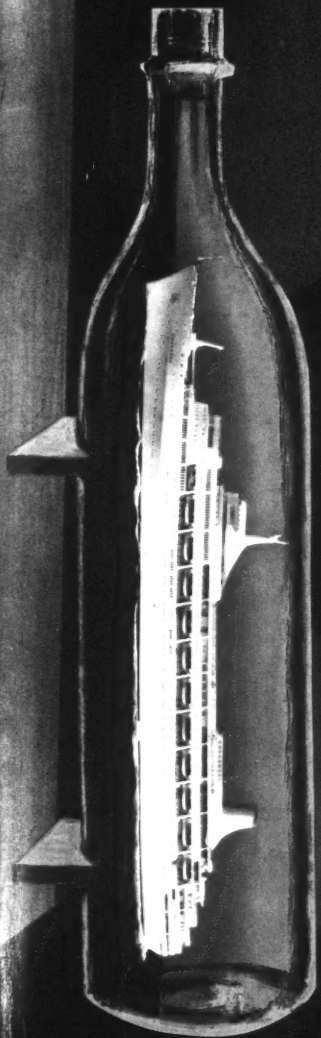


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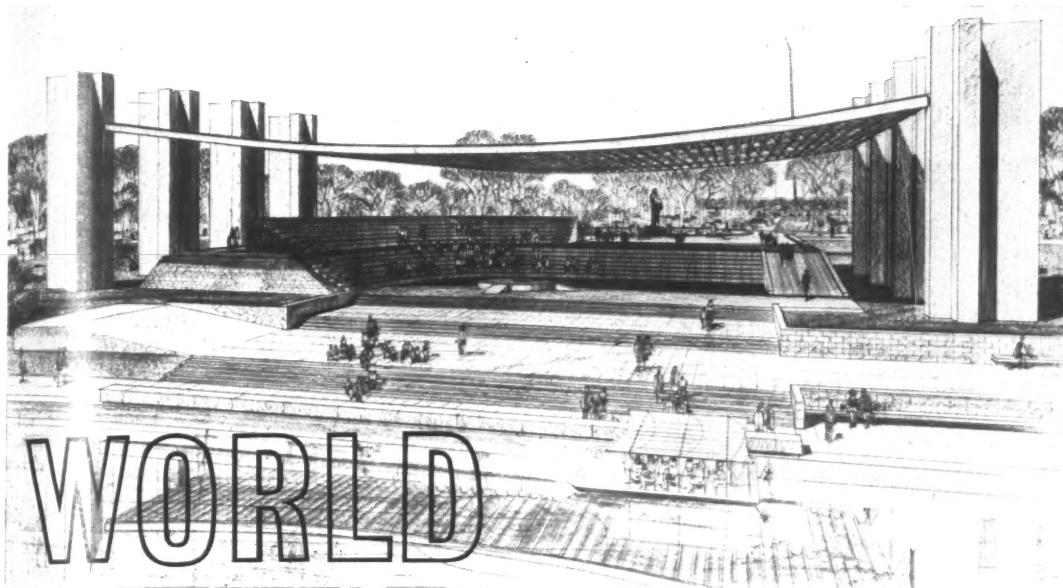
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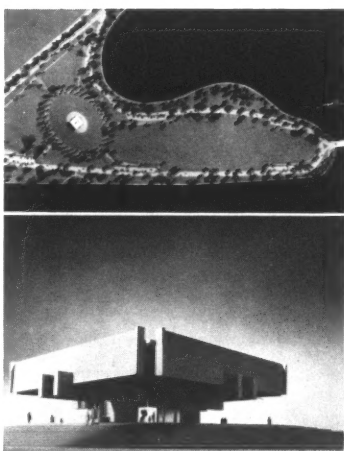
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IN MEMORIAM FDR

The competition for a monument to Franklin Delano Roosevelt had a working advantage over other similar competitions (such as the Unknown Political Prisoner) in that it had a definite site. But this particular site, between the Potomac and the Tidal Basin in Washington, DC, is subject to a number of contradictory pulls. Firstly, which should be the stronger presentation: toward the Basin or toward the river? Only one scheme, unplaced, by Ulrich Franzen, 1, oriented itself unequivocally toward the river, with the intention of making the river-bank the main point of ceremonial approach to the statue of the great President, which can be seen in the background. But Franzen's location of the statue calls attention to the second counterpull on the site—the possibility of honouring the lingering ghosts of L'Enfant's geometrical town-plan and the McMillan commission's proposal to revivify it, by fixing the fourth point of a symmetrical diamond based on the Washington and Lincoln Memorials. This the Franzen scheme does, 2, but the only other one to select a site on the neck



of the isthmus, leaving its head free, seems to have been that of Tasso Katselas, which is true on axis, 3, although its oversailing masses, 4, are a long way from the scholarly classicism of Washington's other presidential memorials.

Most other competitors settled for

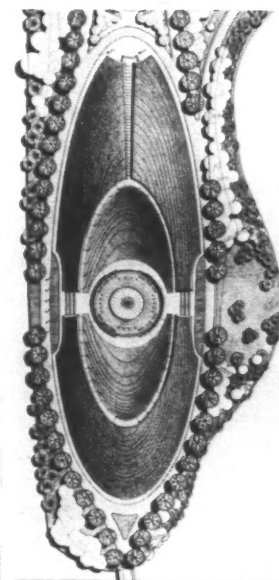
the more obvious solution of location on the point and a major orientation towards the Tidal Basin. But having settled this much, nothing else was settled. The manner of setting up the competition and calling for entries from collaborative teams including sculptors and landscapists as well as architects, clearly opened up creative possibilities, even if those possibilities were somewhat restricted, as Sibyl Moholy claimed (*ARTS*, May/June, 1961) by the decision to make the architects the captains of the competing teams.

Nevertheless, this does seem to have led to a special care over the contribution of specialist designers, such as Tony Palladino's agonized re-appraisal of monumental lettering, 5, for the

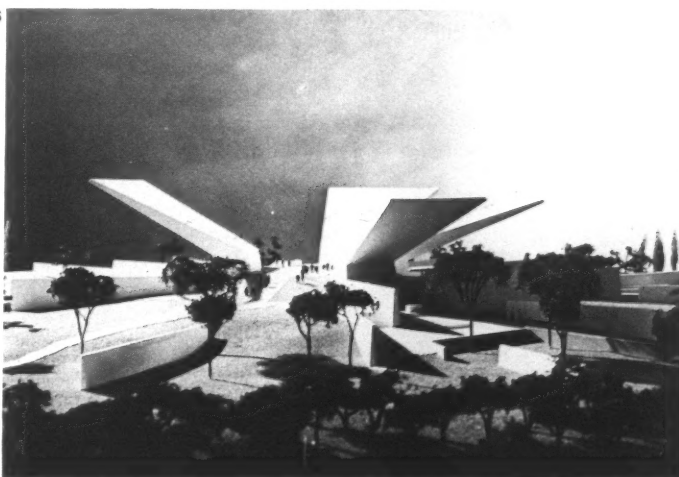


Abraham Geller entry, a scheme which earned general, and deserved, praise for the way in which the cantilevering

'roofs' of its radiating 'Courts of the Four Freedoms,' 6, would make a pattern instantly apprehensible from the air—a telling point this, since the site is over-flown by practically one air-liner every sixty seconds. On the other hand, the landscapists' contributions were of very variable quality, especially where they were the main element of the design. This seems the more of a pity, not only because America is an earth-moving nation, but also because so many of the memorials that the Roosevelt epoch created for itself were masterpieces of the bull-dozer's art. Yet it must be admitted that Hideo Sasaki's concavo-convex mound is feeble in scale, 7,

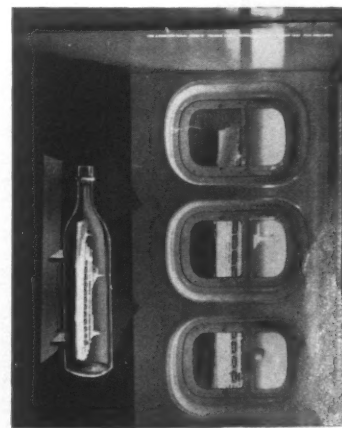


while its symbolic content as viewed from the air, 8, might be altogether unfortunate in the still Freud-shotten



ACKNOWLEDGMENTS

WORLD, pages 147-150: 3, 4, Jay-Bee Studio; 6, Claude Samton; 7, 9, James R. Dunlop; 11, 15, Louis Checkman; 16-20, *Ipari Építészeti Szemle*; 21, 22, *Werk*. INDUSTRIAL OFFICES AND LABORATORIES, HARSTON, CAMBRIDGE-SHIRE, pages 159-161: 1, Toomey Arphot; 2-7, Galwey Arphot. RESEARCH LABORATORIES AT PASSFIELD, HAMPSHIRE, pages 162-165: 1, Toomey Arphot; 2, 5-7, Galwey Arphot; 4, Colin Westwood. WATTS CHAPEL, pages 166-172: Galwey Arphot. STEEP HILL, LINCOLN, pages 176-180: 1-27, Nairn Arphot. ID, pages 181-193: 2, 8-10, 13-15, 19, 20, 24-30, 32, 33, John Maltby; 3, 7, 12, 16, 17, 22, Bryan Heseltine; 5, 6, 18, 21, 23, 31, 34, 35, Nicolas Breton. CONVERTING GAS LAMPS, pages 194-196: 2-4, Toomey Arphot. CURRENT ARCHITECTURE, pages 197-201: 6, Alfred Cracknell; 7-9, British Insulated Cables; 10-13, Toomey Arphot. MISCELLANY, pages 202-208: 1-4, James Mortimer; 5, 6, John R. Freeman; 7, 9, The Manor Studio; 8, University of Melbourne; 12, Portal Gallery. Sculpture, 1, Toomey Arphot; 2-4, Galwey Arphot. SKILL, pages 209-216, 1, Sydney Newbery. THE INDUSTRY, pages 218-220: 1, Victory Studios (Stratford); 2, Rauma Repola Oy.



The cover shows SS Canberra, with its unmistakable silhouette, seen through its own cabin portholes (montage by Kenneth Browne). The Oriana (Orient Line) and the Canberra (P & O), two recent passenger liners that have set new standards for Britain as regards the design of ship interiors, are the subject of an article on pages 155-158 and an illustrated feature on pages 181-193 of this issue.

THE ARCHITECTURAL REVIEW

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- 147 World
- 151 Views and Reviews
- 154 Frontispiece
- 155 Amid-ships: Stephen Garrett
- 159 Industrial Offices and Laboratories, Harston, Cambridgeshire: Architects, Edward D. Mills & Partners
- 162 Research Laboratories at Passfield, Hampshire: Architects, Architects Co-Partnership
- 166 Watts Chapel: Elisabeth Beazley
- 173 Church at Atlantida: Designer, Eladio Dieste
- 176 Steep Hill, Lincoln: Ian Nairn
- 181 Interior Design: SS Canberra: Naval architect, John West Co-ordinators of interior design, Sir Hugh Casson, Neville Conder & Partners in association with McInnes Gardner & Partners
- SS Oriana: Naval architect, Charles Morris Co-ordinators of interior design, Design Research Unit
- 194 Converting Gas Lamps: Derek Barton
- 197 Current Architecture
- Miscellany
- 202 Exhibitions
- 205 Functional Tradition
- 206 Sculpture
- 207 Counter-attack
- 209 Skill: Up-and-over Doors, 2: Anthony Wylson
- 218 The Industry
- 220 Contractors, etc.



FDR

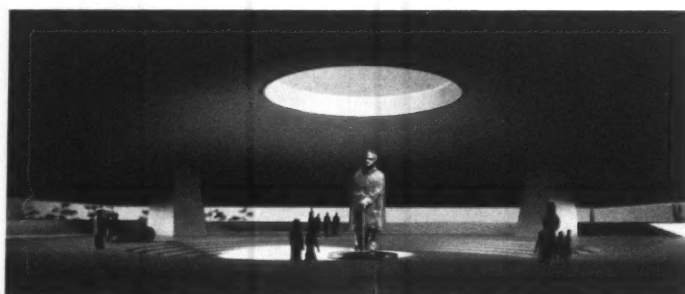
state of the American mind. An altogether more promising solution was that of the Wehrer-Borkin group, whose tough minded terrain-sculpture, 9, was seen as the setting of an annual prize-giving in FDR's memory, with a pavilion to shelter the ceremony, 10, in the central court, and fountains in two subsidiary courtyards.

These zig-zag entrenchments will surely recall, to European eyes, that most influential of modern monuments, the *Fosse Ardeatine*, and the 'Ardeatine' theme is seen in a different aspect in the Rolf Myller Group's low-hanging slab, 11, with the effigy under a central skylight, Philip Johnson also focused attention on a central



effigy, but the form of the canopy was to be tall and light, 12, more in the manner of the New Harmony shrine.

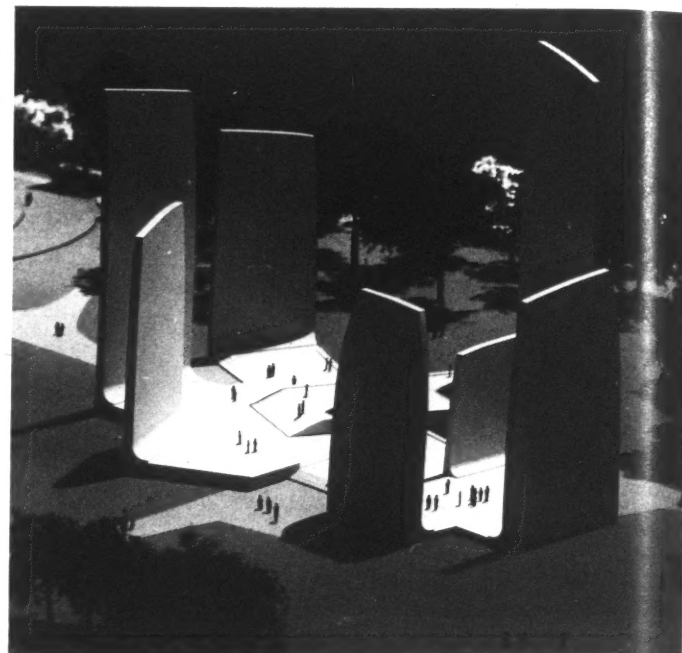
What of the winning design, 13, by the William F. Pederson Group? America's most current architectural catch-phrase came brilliantly into its own in the description of it quoted by Mrs. Moholy—'Instant Stonehenge'—which draws attention to both its strengths and weaknesses. Weak because the towering slabs are



11

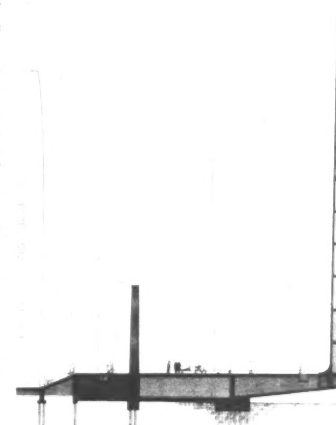


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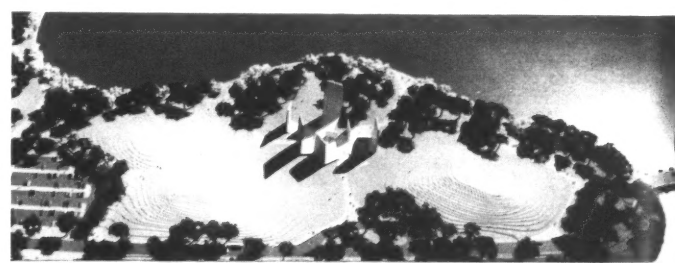


13

ersatz—the section, 14, reveals their built-up, non-slab structure and the way they are cantilevered from their footings; strength because the henge symbolism seems to work, particularly on this site and particularly as seen from the air, 15. Doubts have been expressed about the wisdom of entrusting FDR's brand of political speaking to permanent inscription on tablets of instant stone, and yet his non-rhetorical turn of phrase, such as 'But above all try something,' might well, over the years, acquire a certain runic laconism proper to a rather rude monument, even when his more sustained passages might not, in practice, stand the amount of neck-straining and eye-shading required to read something which, inevitably, will have to start higher up the slab.



14



15

Casabella strikes back

For some time past the appearance of the special issue of *Casabella* devoted to English Architecture and Town-planning has been awaited with considerable curiosity. Now that it has appeared (250, 1961) certain interested parties will be disappointed that Ernesto Rogers has not availed himself of the opportunity to return the fire of those English critics who have attacked Italian architecture so vigorously of late, but it should be observed that Rogers's main intention was clearly to weigh up the English situation for the benefit of an Italian

readership. Three of the main articles are therefore by English authors (Robert Furneaux-Jordan, the Smithsons, David Lewis) and the choice of buildings selected for illustration are such as the AR itself might have picked—the register of architects' names makes this clear enough: Holford, Gollins-Melvin-Ward, Spence, Architects' Co-Partnership, Chamberlin-Powell-Bon, Powell and Moya, Leslie Martin, Lasdun, Smithson, LCC, Stirling and Gowan, Manasseh, and the City Architect's Department, Sheffield. The New Towns are dis-

Casabella

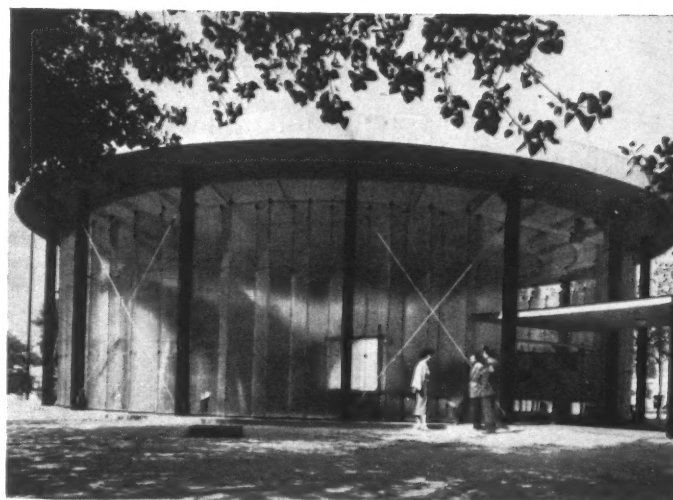
cused, but Cumberland is unfortunately illustrated by a map that appears to antedate the recent traffic studies.

The two Italian articles come from Rogers himself, and from Aldo Rossi. Rogers, in one of those editorial first-essays that have established him as one of the great mandarins of European architecture, dwells on the long relationship between Britain and Italy (remembering, as the British do not, that it has not been a one-way process, that without Britain the *Risorgimento* might have been very different). Throughout his essay runs the theme of the flatness of English culture, in the bad sense—they almost never succeed in becoming gay, except by way of the bottle—and the good—the English architectural panorama looks more like a fruitful *altipiano* than a landscape of deep valleys and towering peaks. Proceeding from this he observes that 'the most original English contribution is to accentuate the functional component of the phenomenon of architecture . . . its highest achievements are in the interior of the house (down to the details of the furniture) and in town planning. . . .'

Nevertheless, he draws attention to criticism of the New Towns, which are notoriously a disappointment to Italians hypnotized by the apparent potentialities of British planning legislation, and Aldo Rossi resumes this theme, underlining the political content and primarily socialist dynamic behind that legislation, and drawing significantly on a left-wing observer of the British architectural and political scene whose views are unknown over here—Carlo Doglio, an occasional but brilliant contributor to the Olivetti-sponsored magazine *Comunità*.

But Rossi also touches on another point of interest in Anglo-Italian architectural relations—the Team-X proposition that architecture should be conceived 'in terms of human association rather than functional organization.' This, he says, 'is what we are proposing here in Italy, though only at the level of a few speeches and a few suggestions.' At this, the English reader will probably enquire how it is that Quaroni's work at La Martella has been forgotten so early, work that has always been presented to the English as an example of town planning 'in terms of human association.' And here a mystery appears, for the English literature of the architecture of human association, scattered through student magazines and other ephemera of the post-war decade, is illustrated almost entirely by Italian instances (such as the Piazza di San Marco or the Galleria) and the English literature on Italy of the same period abounds in carefully noted and photographed instances of human association (usually in the Galleria or the Piazza di San Marco).

Since it is unlikely that Rossi (who must have read at least Kidder-Smith's *Italy Builds*, if nothing else of the period) can be ignorant of these manifestations, it appears that the phrase 'in terms of human association' has already taken on a somewhat different meaning in Italian usage to that current in Team-X, even before battle is fairly joined. *Veramente, è difficile intendersi.*



16

HUNGARY BUILDS

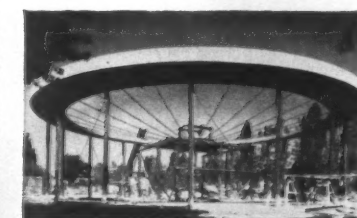
Historians of some future epoch can be left to decide what similarities existed beneath the outward show of differences between East and West in the Mid Twentieth-Century, but it would be fascinating to know here and now whether similar motivations lie behind similar architectural solutions, and what drives the Socialist Republics to use forms that, in the West, are associated with what Robin Boyd called 'The engineering of excitement.'

The Hungarian review *Ipari Építészeti Szemle* has recently (18, 1960) described and illustrated a number of structures serving a variety of mostly industrial functions, but including two that will look immediately familiar to Western eyes; one an exhibition pavilion with a suspended inverted saucer dome roof, 17, and a plated glazed exterior, 16; the other a covered tennis court with spectator accommodation, 18, designed by Dr. Lajos Semsey. The date of this structure—1955—would give it something of a pioneering status anywhere in the world (for some reason it did not receive the publicity it deserved at the time of its completion) but the mode of erection adds considerably to its

18

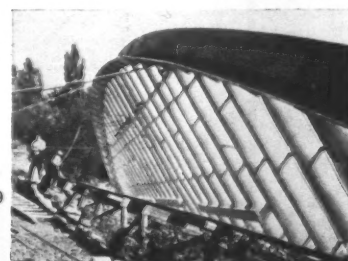


interest. The roof is a doubly-curved vault built up of light metal sections and carried by curved walls of solid brickwork at either end, the sides being glazed. This would not be very remarkable in a country with an advanced building technology . . . but let the English-language summary in IES tell the story: 'To maintain the exact geometrical form, to organize a building technology and working methods assuring a quick and first-class job, with minimal work and without using a scaffolding of 10,000 cubic metres, was a rather difficult task.' Among the devices employed to achieve this difficult task was that of building the lateral window arches flat on the ground, 19, and hoisting them



17

into the vertical, 20, and it is generally clear that far from being a by-product of a copious building technology—as is sometimes alleged of Western vault-work—Dr. Semsey's vault is a product of sheer determination and applied ingenuity.



20

SIMPLE JOB SIMPLY DONE

The epithet 'modeste,' applied by *Werk* (5, 1961) to the rentals of a small block of flats at Villars-sur-Glâne, 21, might equally well have been applied to their detailed appearance, for rarely can so clearly post-Marseilles

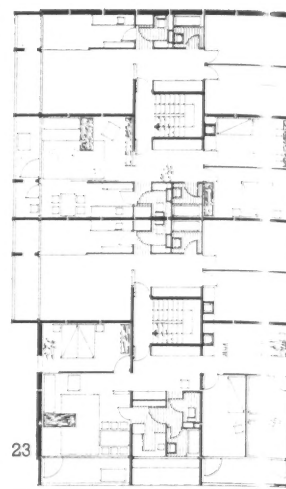
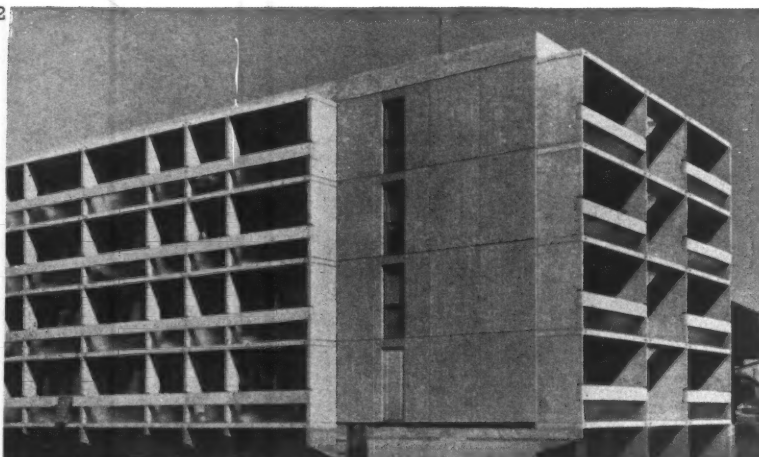


21

simple flats

an aesthetic, 22, have been used with such decent reserve and a complete absence of bravura. Compared with the abstinent elegance of these prefabricated façade elements, the equally Corbusian architecture of the LCC's work at Roehampton seems operative as well as *brut*. The architects, Decoppel, Veuve and Aubry, seem to have achieved a Szigeti reading of a theme usually interpreted in more Oistrakh terms, and a similar independence within the frame of a given tradition is seen in the planning, in which the flats—true to the *Unité* theme—extend through the block from one façade to another, and have sliding walls to open out narrow spaces, 23, but are entered in pairs from centrally-located staircases.

22

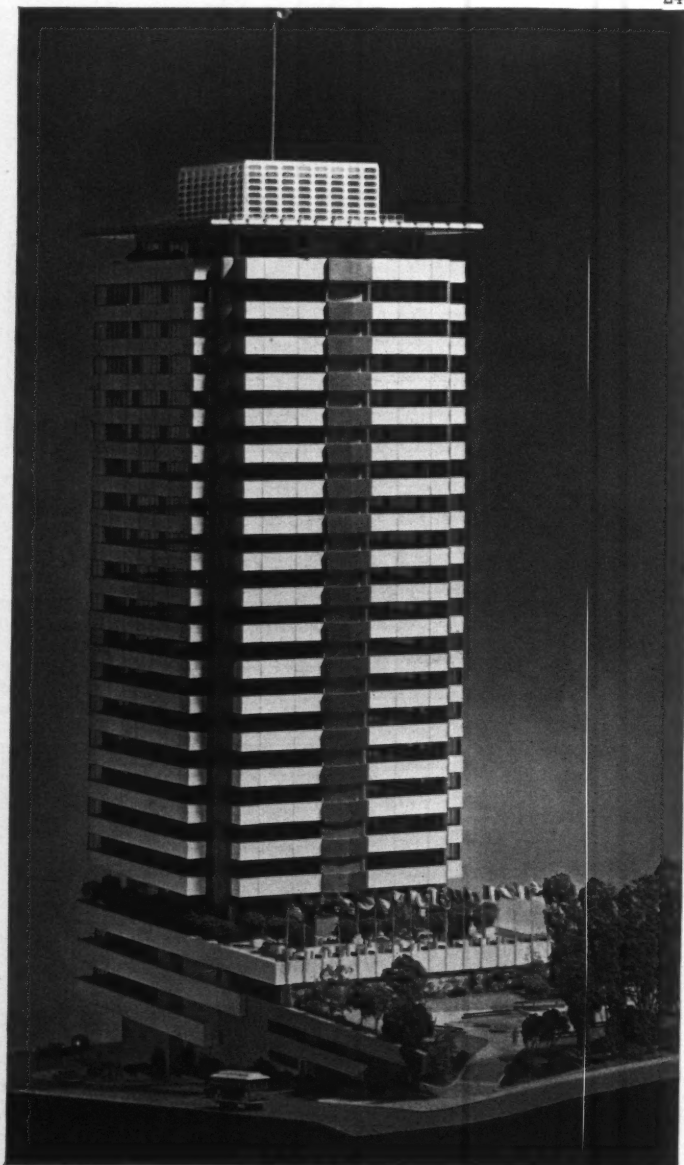


23

INTERNATIONAL BUILDING

Californian office-tower

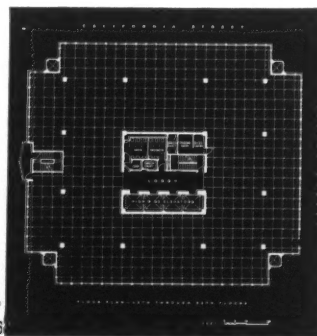
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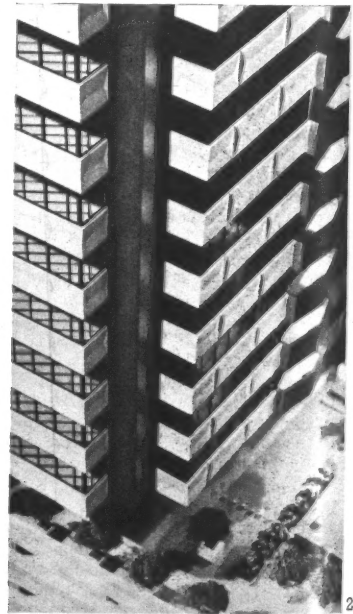
It is possible to integrate your services, or even to expose them, without making mock-heroic gestures out of them *à la* Kahn—the International Building, 24, in San Francisco shows how. Designed by Anshen and Allen, and due for occupation shortly after these words appear in print, it avoids deep, densely packed floor structures by moving some of the vertical service-runs back to the place where they were before curtain walling came in—on the perimeter of the plan. More precisely, they are in the corners of any typical tower floor, 25, cased in the gold-and-grey-clad ducts which can be seen in 26. In spite of their exterior location, they are not dominant visually, because the corners are deeply re-entrant, with some seven feet of floor cantilevering beyond the duct. The site and aspect of the tower also deserve comment—packed into one corner of a block bounded by steeply sloping streets, and largely occupied by a multi-storey car-park, it is assured of reasonably uncluttered views by virtue of the purchase, from the municipal authority, of the air-rights over the garage.

Given all this, the International

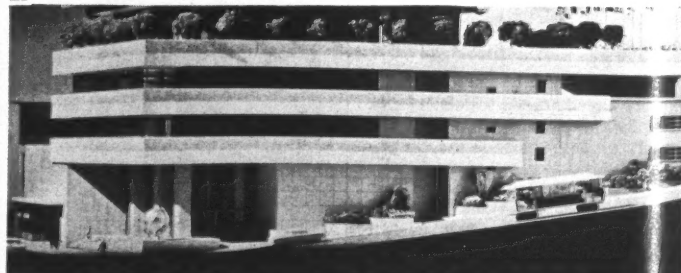
Building will probably still hold the slightly puzzled gaze of a European viewer, who will feel something exotic or even out of period about it. Detailed examination will show what it is: the lower part, on California Street, when viewed in isolation, 27, evokes Schindler, and the whole tower, viewed in this kind of light, seems to express most of what was best in the middle and late tower projects of Frank Lloyd Wright without his more infuriating mannerisms. The whole project, indeed, reminds us that California is another culture, uninvolved architecturally with the Europe-dominated stylistic disputes of the East Coast school.



25



26



views and reviews

MARGINALIA

CHICAGO HERITAGE

Of thirty-eight buildings in Chicago recently designated as 'architectural landmarks,' two have already been demolished—the Garrick, by Adler and Sullivan, with its irreplaceable auditorium detailing, 1, and the Cable, by Holabird and Roche, notable for its unusually sensitive management of mullions and window openings, 2. In the same period of two years, the Republic, 3, also by Holabird and Roche, has joined them under the demolishers' pick and—though it had not been designated—it is difficult to see how a city proud of its Chicago School could be prepared to spare a work of such quality.

As is now known even in Europe, the destruction of the Garrick produced a convulsion of feeling among thinking Chicagoans, and the preservation of its decorative detailing has become a community enterprise that employs many hands and many garages and back-yards. But at the same time,

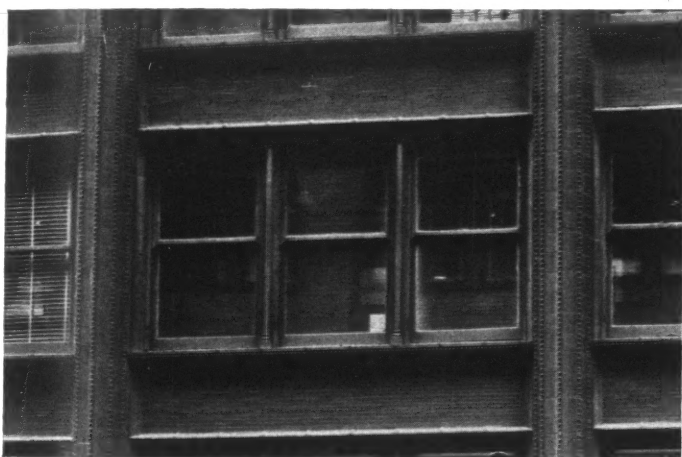
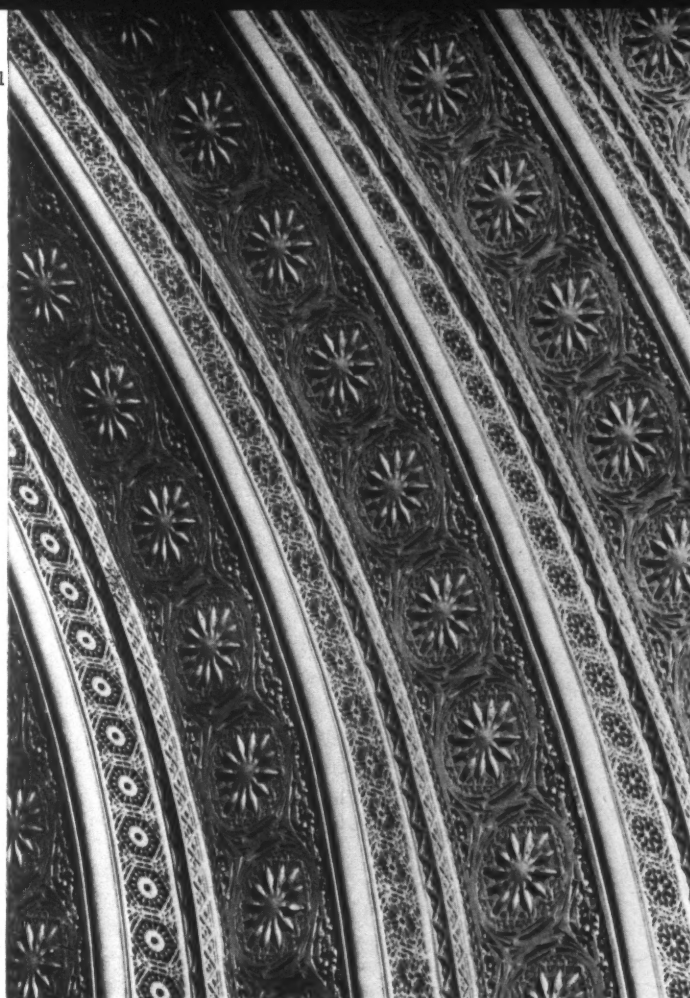
appearance as seen by the Man in West Jackson Boulevard.

However, the fact that these buildings still stand to-day is no guarantee that they will still be standing in a year's time, though some of them are carefully maintained (and others are hamfistedly maintained, like the Robie House, but still maintained). With so many first class buildings in possible jeopardy, the Committee deserves all the support that can be mustered all over the world from those who—even without having visited Chicago—have felt the liberating influence of its architecture.

HISTORY AGAINST SMOKE

The father of smoke abatement, as of English silviculture, was John Evelyn, and his classic, basic *Fumifugium; or the Smoake of London Dissipated*, has just been re-issued to mark its tercentenary by the National Society for Clean Air.* Irrespective of its utility as history in the service of a good cause, *Fumifugium* is, in a minor way, a crucial document in the emergence of the 'Experimental Philosophy' of which Wren and Newton were the main ornaments. Evelyn is the first of the embattled consumers, at war with the maladies of an undisciplined technological and capitalist environment. But the intellectual armory that he musters against a

* 5s. in hard covers; 2s. 6d., paperback.



recognizing prevention to be better than cure, thinking Chicagoans were also inspired to set up the Chicago Heritage Committee to defend what remains of the patrimony of the Chicago School. Since many of these works are also part of the common patrimony of the world-wide Modern Movement, the Committee has launched an international appeal for assistance and moral support, and the illustrations of recently-demolished masterpieces shown here are taken from their first publication; a set of ten postcards showing the work of the Masters of the School. These cards, which may be obtained (at one dollar the set) from the Secretary of the Committee at PO Box 4513, Chicago 80, Illinois also illustrate—one is relieved to note—buildings that still stand, including the Robie House, the Reliance, Unity Temple, the old Stock Exchange, the Auditorium, Carson-Pirie-Scott and the Monadnock, the latter recorded in what must be the first photograph, 4, to show its real

Four postcards from a series illustrating famous Chicago buildings: 1, detail of the auditorium of the Garrick; 2, window bay of the Cable Building; 3, the Republic; 4, the Monadnock.



views and reviews

problem that is still as modern as the statistics of pulmonary disease, or of land values in Los Angeles, is largely that of the classic authorities, the Hippocratic corpus and—inevitably—*Airs, Waters and Places*. Indeed, the new science, in so far as it was embodied in the Royal College of Physicians, was against him, asserting that coal-smoke was beneficial to some respiratory diseases.

But Evelyn, standing four-square on common sense and the niceties of human life, was not impressed. Coal-smoke visibly made men cough and sneeze and was in general 'an infernal nuisance'—a phrase which he coined and meant to be read literally. It corroded plate, tarnished silver, rotted cloth and yellowed pictures, then as now. His proposed cures are surprising—and commonsensical as far as the knowledge of the day permitted. He saw that he could not hope to forbid the burning of sea-coal, so he proposed that all industrial users—and in 1661 they were already numerous—should be banished from London to a point down-stream of Greenwich, and that large areas up-wind (south-west) of London should be planted with aromatic trees and crops to improve the air of the metropolitan area. Smokeless zones are beginning to effect his first proposal, and three-hundred years after its first utterance, the second begins to sound a little less 'unscientific' than some later followers of the experimental philosophy might have believed. Curiously enough, Evelyn does not suggest the use of deciduous trees as permanent air-filters, even though he observed how soot settled on their leaves, but his views on planting constitute for all that a surprising anticipation of modern ideas of microclimatic control.

CORRESPONDENCE

VANDALISM IN CAMBRIDGE

To the Editors.

SIRS,—I write to draw your readers' attention to the truly horrifying lopping of the plane trees on the Newmarket Road approach to Cam-



5, trees in Cambridge referred to in the letter from Mr. W. Harford Thomas. See also the frontispiece on page 154.

bridge. As you probably know this is a particularly dreary entry into Cambridge, which until recently was made quite attractive by an avenue of mature plane trees. They have now been butchered. Though I am told the job was done by experts, it appears to me to be the crudest kind of amputation, and the result is painful to see. I hope some emphatic protests have been made, and will continue to be made.

Yours, etc.,
W. HARFORD THOMAS.

Oxford.

BOOK REVIEWS

GERMAN ACHIEVEMENT

PLANEN UND BAUEN IN NEUEM DEUTSCHLAND. Edited by the Bund deutscher Architekten, Westdeutscher Verlag, 1960.

The RIBA may be more powerful than the Bund Deutscher Architekten, but the German body certainly does more for publicity for its members than does ours. They first brought out a number of regional books, illustrating and describing the work of the architects in the area, and now they have assembled what they found worth publishing from anywhere in Western Germany and put it all into one massive volume of nearly 650 pages. I don't know how many illustrations there are, but certainly more than pages. The chapters deal with such topics as buildings for government, office buildings, schools, hospitals, swimming baths, etc., and so on to work of the government abroad, the Brussels Pavilion, Interbau and the plan for Berlin, and painting, sculpture, mosaic, stained glass, etc. in conjunction with buildings. There is much welcome stress on gardens and parks. Traffic problems are documented too, and the new fast approach roads to Berlin make London look thoroughly ridiculous. A section on pedestrian precincts and especially pedestrian ways through city centres also have something to teach us. The lesson from the sheer bulk of work done, the number of new public buildings, new big hospitals, new railway stations, on the other hand, it may not be advisable to learn. You need bombing first and a *Wirtschaftswunder* second to create the necessary conditions.

With the exception of a few curious private houses and a few more curious churches all is twentieth century style in this book. The Farmers' Union and the Bank of England are possible only in England. Private houses are the least interesting chapter, and, in any case, they seem to be—in contrast to America, the Commonwealth and Italy—as much of a rarity as they are here. In all other fields the standard displayed is high, especially in that anonymous version of the pre-Nazi style which is the almost exclusive idiom of office buildings, hospitals, schools, etc. The detailing seems to be crisper and more elegant than we could muster, if we had to put before the public some eight-hundred or more illustrations. In large-scale jobs England seems to be more interested in the grouping of blocks of various height and bulk, though the German book also can show some five or six impressive and attractive composi-

tions, e.g. the Ministry of Finance at Bonn, and the headquarters of the Karlsruhe Life Insurance.

Laymen always blame the style of the twentieth century for being international. Turn over the pages of this book, and you will in one place come up against just one building designed by Baudouin. It gives you quite a jerk. On the other hand, if you really try to see what is German in the majority of the buildings, that is not so easy. Negatively, there is little curtain-walling (just as well) and no influence from Le Corbusier's present style at all—in spite of his Berlin Unité. Positively, one notices a different kind of window-glazing which recurs, more stone-facing of course and a few more similarly minor features. Of major facts the most noticeable is perhaps that, if we can trust the book, there seem to be few housing estates on a really large scale and with a unified plan. On the layout of one of these, the Siemens estate in Munich, unfortunately the book gives no information on area, number of dwellings, etc.

I just said: if you can trust the book. It seems so comprehensive that one is ready to regard it as a complete survey of what matters. What shakes this belief is the fact that Professor Eiermann appears in the book exclusively for his Brussels Pavilion and that in the chapter on industrial buildings he is not mentioned at all. Are there other such gaps? How can one know over here?

Stylistically, there runs a break through the book, between the majority of rational designs and a minority of anti-rational ones. The latter are exclusively theatres, concert halls, cinemas and churches. The weirdest are the Cologne Opera House and the Stuttgart Liederhalle, both known to readers of the REVIEW (August-September 1959). The architects of the Liederhalle, Rolf Gutbrod and Alfred Abel, print a curious and very German apology for their design. They say that they tried 'to apply musical laws to the shaping of concert halls.' The asymmetry of the place is intended to express the need for relaxation 'which in the widest sense is always musical.' The rooms are supposed to be in contrapuntal relation to each other—'As one cannot leave out one movement of a symphony, so it is with the rooms of the Liederhalle. You could not add anything without disturbing its accords.' 'We tried,' so they sum up, 'to give people instruments, not just envelopes, beautiful instruments, we hope, as servants of good uses.' Fancy any English architect expressing himself like that.

As apologies for churches this kind of mysticism has quite a tradition in modern Germany. Churches in the BDA book come in all manner of styles, many interesting, a few very moving indeed. Among the architects are the familiar names of Dominikus Böhm and Rudolf Schwarz. Other names are equally familiar from pre-Nazi days: Bartning, Scharoun, Riephahn, Luckhardt, for example. In addition there are of course all the new names, Hentrich and Petschnigg and Sepp Ruf probably coming out top. There are also unknown names which ought to be known—especially F. W. Kramer and Dieter Oesterlen.

I have few criticisms. More plans would have been an additional asset. Dates also would have been useful. The period covered is, after all, about twelve years. Finally English captions: they exist, but not consistently, and English summaries of the text parts might have been provided too. The introductory texts are not consistent. Some chapters have none, others are detailed and extremely informative. The English of the captions is good, with a few exceptions which are welcome merriment in an otherwise very serious book. The mortuary, for instance, is here a dead-house; and why not?

Nikolaus Pevsner

INTERNATIONAL SCHOOLS

SCHOLE. Hept. Milan.

Despite claims in the Introduction—formative influence of good design on the young and the like—this book reflects the descent of school architecture from the prestige of the thirties to the workaday level it is now at. Here in England a school design is seldom news and only the practised eye can distinguish between a good and a bad plan. Out of nearly seventy projects illustrated, five are English; two of these are far the best schools, as against university buildings, in the book—Moro's Fairlawn and Chamberlain, Powell and Bon's Bousfield. Of the remainder Warnecke's well-known design of an elementary school, 'Mira Vista' in California, is the oddest and most interesting, forcing an idea to the limit; but the scale looks rather doubtful.

The projects are arranged in the order of nursery and elementary schools, secondary schools and institutions, university buildings. Italian schools, outnumbering the others in the first two groups, are far from impressive, perhaps due to very mean budgets, but also to the frequent choice of polygonal classroom—pavilion-type—plans, on which are placed tiled roofs. It may well be that honourable intentions, of fitting in well with the locality and of gaining richness from simple and cheap materials, are unphotogenic, but this can hardly account for the grim, non-sympatico, look of the bigger buildings, e.g. the Notre Dame International School in Rome. Indeed, it is a great relief to turn on from these to the gentler designs of the Scandinavians, Swiss, Finns and Americans. Except for a prefabricated classroom at Villejuif the French are omitted. Looking for distinguishing labels, good English work of to-day retains our eighteenth-century characteristic of blandness; the Swiss are correct, the Danes quietly romantic, the Finns retiring, perhaps. American schools shown here give the odd impression of being still English-provincial.

The considerable space given to university buildings—surely a different category—could easily have been filled by more schools. Perhaps the editors thought this too dull or would have been compelled to leave South America mostly out. Although the last two projects illustrate parts of Saarinen's Drake University and Mies van der Rohe's Illinois, the Paraguayan Experimental School, by Reidy, and the University Cities of Caracas and Mexico provide greater vitality and

sparkle, as exhilarating here as (I hope) in the reality of their surroundings and climate. Some of the illustrations seem familiar, others new. Whether one likes the buildings or not, here is the confident vitality of Picasso at the best and the jolliest of his middle period: image making, bursting with new forms and the enjoyment of power in their execution. Such a refreshingly positive attitude cannot last for long—nor the cash to back such formally extravagant building—but the editors have done a kindness in reminding us that it still exists.

James Cubitt

ST. JAMES'S ITINERARY

SURVEY OF LONDON. (F. H. W. Sheppard, General Editor). Vols. xxix and xxx, *The Parish of St. James Westminster, Part One, South of Piccadilly*. Athlone Press for the London County Council, 1960 (646pp. + 277 plates + 86 text figs. + 2 colour plates + separate plan pocket), 8 guineas the set.

This pair of volumes celebrating the Survey's first sixty years is a gold mine—a Fort Knox if that is still an unshaken simile—and quite unmissably in its increased humanity of style and choice of supporting material.

The once-rural area of St. James's, which had a patron saint six centuries before it had a parish church, did not 'just grow' like Topsy and Whitehall. The core of it was developed, or enveloped, by that seventeenth-century phenomenon of planning which, in the six decades between Inigo Jones in Covent Garden and Wren's speculation in the Barbican, produced the first eight London squares. And St. James's was the most aristocratic of them all, the texture of its history the richest—what a palimpsest, in fact.

We can trace the permutations around the square, down St. James's Street, and along Pall Mall with street views à la Tallis, helpfully provided in the accompanying 'plan pocket,' spread out—the kitchen table is recommended. The square itself has had almost an ABC of London architects: Adam, Brettingham, Cockerell, Cubitt, Flitcroft, Lutyens, Soane, Stuart, perhaps Hawksmoor, perhaps Edward Shepherd (interiors at No. 4 could be compared with his Boreham House in Essex for Benjamin Hoare), and a previously unknown John Field (at No. 6) unearthed from papers at Ickworth. Pall Mall has been pell-mell with curiosities such as the Shakespeare Gallery and Schomberg House, with past glories such as Soane's Buckingham House and its variation on Kent's staircase in Berkeley Square, and with the private glories of the great Clubs. Which, these last, a number of us will never see in any other form than this. Other riches in the parish include Spencer House on Green Park, Wren's church in Piccadilly, and the Haymarket Opera House with its complicated history. Devotees of Miss Vivian Leigh's favourite theatre will find its obituary here.

The poignant thing about this series, indeed, is that so much of it consists of obituaries. But some of London's most elegant shops are very much alive and here are histories of the premises of Berry's, Lock's, Christie's, Hatchard's, and Fortnum and Mason's. Emberton's pioneer Simpson's is also in, and appreciated. Lasdun's flats on

Green Park were completed too late to be included, unfortunately; a more typical contribution by our own age to the area, that faceless pile in Pall Mall, is tactfully undescribed.

The side streets are not neglected: a walk along Jermyn Street, or down Crown Passage, or on the site of Lord St. Albans's market will now afford more overtones than ever. And these will be the correct overtones, no old-guide-booke romancing but based first on leases and ratebooks, then on careful and loving accumulation of all that has been truthfully said and drawn and done about these pieces of land.

Whichever political party may, according to their posters, 'care' more about London, in this enduring work of recording London the LCC itself cares effectively indeed.

Priscilla Metcalf

LOCAL GOVERNMENT BUILDING

BUILDING BY LOCAL AUTHORITIES. By Elizabeth Layton. *The Report of an Inquiry by the Royal Institute of Public Administration*. Allen and Unwin, 40s.

Local government in England and Wales has a delusive appearance of system—complicated, no doubt, but nevertheless organized, articulated system. Several authors have purported to describe its structure and operation in quite short books. In practice its workings are almost infinitely various. Most disputes about how it could be made to work better (even—indeed especially—disputes among people who have spent a lifetime in its service) arise because the disputants are generalizing from different experience, without realizing how very different such experience can be.

By the same token, when a researcher who has closely studied the existing methods and forms of organization used by 65 assorted housing and school-building authorities does find it possible to state a generalized finding, that finding commands respect; and conversely, when such an author concludes that no valid generalization can be made on some point, that conclusion also carries weight. When the researcher and author in question is as thorough, disinterested, clear-headed and conscientious as Miss Layton, any general pronouncement on these matters that may thereafter be made by anybody—and particularly any interested body—may reasonably be dismissed as unworthy of attention if it does not take account of her findings, and either accord with them or back its dissent with an equal range and diversity of evidence.

That being said, the best use that can be made of the space here remaining is to quote those of Miss Layton's conclusions which most directly bear on the relations between architects and their municipal employers or clients.

'Part of the failure to prepare co-ordinated long-term programmes . . . is caused by the centrifugal attitudes of committees and the sharply departmentalized authority of chief officers. . . . It is recommended that all authorities should, if they have not already done so, arrange for the Architect or Engineer to be responsible to a particular committee for the operation of the building services in his charge. In this way he can turn to the chairman for advice or support if committees press their demands too hard.

'If the size of the authority and its building programmes justify it, there are advantages in separating the architectural from the engineering services and in appointing a Chief Architect. By this means more able architects and better junior staff are likely to be recruited. Such a

team may be able to bring about improvements in the quality of the architectural work and in cost planning and research which could far outweigh the dis-economies due to having two departments. Authorities are urged to consider the setting up of separate Architect's departments under a Chief Architect if the volume of the architectural work would justify such an arrangement.

'There are certainly some advantages in combining responsibility for design with responsibility for maintenance. But there are also differences of approach to the technical problems of maintenance and the human problems of tenants. It is not necessarily in the best interests of the tenants to merge the functions of housing management with architectural design under a Director of Housing, who is an architect. Housing management and architectural design are different functions and there are merits in keeping them separate.

'Many of the criticisms of private architects by local authorities stem from too compressed a time-table. It is recommended that authorities should plan their long-term staff requirements for architects in such a way that more of the work to be done by private architects is determined well ahead. . . . Emergencies . . . should be exceptional.' (But) 'the fault lies partly with those private architects who are unbusinesslike and who have done the reputation of their profession a disservice. . . . To get the best results the private architect should be given adequate time to prepare his plans; clear instructions on procedure and the administrative arrangements; a cost target; a clear brief, which gives the council's essential requirements but is flexible enough for the architect to develop his own ideas; direct access to the committee to explain his plans. . . . It is recommended that large authorities should regularly give a proportion of their work to private architects, and that smaller authorities should commission them from time to time to provide the stimulus of fresh ideas.

'It is . . . important that ways should be found to make the experience of local authorities available to the development groups. . . . In its own field the Consortium (CLASP) is as great a step forward as the Ministry of Education's development group has been. . . . An extension of this form of joint action would bring financial and technical benefits which are out of the reach of local authorities singly.

'To design buildings efficiently the planning and control of costs from the outset of the scheme are essential. This involves the fixing of a ceiling or target cost when the architects are first instructed, and the systematic control of costs throughout the period of design. . . . Such work involves close collaboration between architects, engineers, surveyors and other experts. It is recommended that local authorities should do all they can to encourage it.'

It is on this slightly pious note that the book ends. It is, of course, no criticism of such a book to complain that the author has deliberately confined her suggestions for improvement to what is possible within the framework of existing forms of local authority. But one puts down her book with the fervent hope that she will now write another, telling us what changes in that framework (including the committee system) are suggested by her unrivalled knowledge of the limited scope for improvement it allows.

Derek Senior

EARTH-BOUND ARCHITECTURE

THE FAITHFUL THINKER. Edited by A. C. Harwood. Hodder & Stoughton, 21s.

The centenary volume in English on Rudolf Steiner consists of a number of essays ranging from the Cosmic Christ to mongol children—the term used in the medical sense. One essay deals with architecture. It is by Kenneth Bayes of the Design Research Unit, an architect himself and the designer of a school at East Grinstead which is frankly modelled on the master's style.

Steiner as an architect must always be an interesting theme; for his must be the only case in history of a man both creating a religion and designing the sanctuary of the religion himself. With this aspect of the Goetheanum Mr. Bayes deals only in passing—especially the interpretation of Steiner's Goethean principle of the metamorphosis of form as illustrated by the capitals of the first Goetheanum and certain other carved details of the same building. This first temple was built in 1913-20. It was of wood and burnt down on New Year's night 1922-23.

The replacement which is still standing is of 1923-28. It is of concrete and, according to Mr. Bayes, Steiner only prepared a rough clay model for it. The relation of the two buildings is strange. Mr. Bayes finds the plan of the first of lovely shape—the second 'of little beauty.' Externally both buildings are fascinating to the historian.

What can Steiner have seen in 1913 to stimulate the first, what in 1923 to stimulate the second? For the first, one is led to look in the van de Velde direction, for the second to German Expressionism. The second is much more puzzling. But Mr. Bayes is not concerned with history but with the present day. He sees the history of twentieth-century architecture as two streams, one of buildings, 'neat, tidy, straightforward and logical,' but also 'mechanistic, inhuman, with the elegance of a precision machine,' the other 'modelled' and designed 'for the love of form.' Gaudi belongs to the latter and also the Einstein Tower and Idlewild and Candela and the Sydney Opera House. Steiner finds his place thus without effort, and Mr. Bayes's chief theme in his essay is to compare recent sculptural architecture with the Goetheanum.

According to Steiner man belongs to the earth and at the same time to the angels. Art expresses this human state and architecture, being patently earth-bound, especially. So Mr. Bayes pronounces against pilotis and against buildings that look as if they might take off any moment. The argument does not seem quite logical. The angelic sphere is space and an active space, i.e. a space acting on the building. It is a stroke of genius on the part of Mr. Bayes to demonstrate this difficult point by printing Christian Morgenstern's immortal poem *The Fence* in R. F. C. Hull's translation. (The poem was published in 1905.)

There was a fence with spaces you
Could look through if you wanted to.
An architect who saw this thing
Stood there one summer evening,
Took out the spaces with great care
And built a castle in the air.
The fence was utterly dumbfounded:
Each post stood there with nothing
round it.

A sight most terrible to see
(They charged it with indecency).
The architect then ran away
To Africa or America.

While this regard for space, formulated by Morgenstern in the Max and Moritz rhythm, has become a commonplace of modern architecture, Mr. Bayes rightly emphasizes that only few have understood it as external, universal space eating into the solidity of form. Of the other principal architectural criterion of Steiner, the criterion of metamorphosis of form, even less use has been made. In the first Goetheanum it meant rather primitively that the seven major capitals were a sequence in which the next always evolved from the preceding. Mr. Bayes now stipulates that this criterion could be applied to the elements of a building in a much more general way and that by combining formal unity with visible evolution of one expression of this unity out of a preceding one, time might be made visible in space and thus architecture become frozen music indeed.

Nikolaus Pevsner



This used to be a leafy avenue leading into Cambridge. It has now become a prize example of the ruthless mutilation of trees by a local authority—see the letter from a reader on page 152. These trees will grow again, but not into their natural shape, and this picture, by showing the characterless vacancies revealed by their absence, is a reminder of the immeasurable value of the trees that line the streets of many English towns.

Stephen Garrett

AMID-SHIPS

The statement by Lord Brocklebank, chairman of Cunard, that he would prefer the proposed new Queen liner to have 'a Georgian type interior', will have deepened the general apprehension felt when the Government announced their intended multi-million pound loan for her construction. But against Cunard's bad reputation in the field of interior design can now be set two new British ships that show how well we can do. The Oriana and the Canberra, which are illustrated on pages 181-193, are object lessons in the contribution that sensible ship-owners, and the good designers they employ, can make. The way in which they were designed is discussed in the article by Stephen Garrett which begins below, and he also adduces certain lessons from their design, which there is still time for Cunard to learn.

Apart from problems of sheer size, the requirements of the Ministry of Transport and of Lloyd's, the nuances of status-grading of the crew's quarters, the allocation of space between cabins, public areas and services—which were not directly the concern of the interior designers of *Oriana* and *Canberra*—there still remained a great range of problems which they, like any other ship designers, were required to handle, and which both ships have in common.

Both are for use in hot climates for most of their

voyaging time, and their interiors must reflect this both functionally and visually. But both will also spend some time in the Bay of Biscay and points North in the course of their normal service, which produces an entirely different set of requirements. Both will be used by very varied passengers—robust and athletic, quiet and relaxed, active emigrant families with children travelling tourist, retired couples travelling first class, with the varied eating and drinking habits that must be expected on trips

that start from Southampton and finish up at San Francisco, taking in Africa, Asia, Australasia and Oceania *en route*.

The interior designer of a ship is not merely asked to design, as it were, an hotel that can be adapted to differing clientele and climate; his structure is in motion continuously from the day it is launched to the day it is scrapped and is never quite still even in dock. Furniture and fittings must be capable of taking reversals of stress such as are never met on land, securings and fixings must be of another order of strength, large areas of glass are threatened not only by structural movement but also by sliding or falling bodies (including human ones), a harmless corner or angle on land can become a lethal cutting edge at sea, and the aerodynamics of the superstructure in a brisk breeze can make areas of deck uninhabitable.

All this, it should be remembered, is over and above the main problem that architects generally recognize in this field, that of reaching a working arrangement with the naval architect, his team and his methods, and the one imperative that the more progressive architects, at least, now generally recognize, that of creating a ship-like character. Neither the problem nor the imperative is quite such a straightforward affair as has been supposed in the past, as will be seen from the detailed history of the design of each ship.

Work on *Oriana* and *Canberra* was initiated independently, the two lines (P & O and Orient) being fused into the largest single shipping company in the world only after the boats were launched, though the chairmen of the two companies were brothers. *Oriana* was commissioned for the Orient Line by Sir Colin Anderson in 1956, both Sir Colin and the Orient Line having already a solid reputation for the encouragement of progressive design. *Canberra* was commissioned, in the same year, by Sir Donald Anderson for P & O. The boats are thus of the same generation, intended for similar service, faced by similar economic problems in operation, and of about the same tonnage and carrying capacity—the *Oriana* is of 40,000 tons and carries 2,134 passengers, the *Canberra*, at 45,270 tons, carries 2,238—and comparisons can therefore be made that are not normally possible.

Oriana was already somewhat advanced when Sir Colin Anderson called in Design Research Unit (DRU) to co-ordinate the interior design. This particular office had no previous ship experience, but is the biggest design office outside the USA, is efficient and capable of co-ordinating the work of other designers, and the reputation of its work needs no further advertisement here. Having no previous experience of ship work, it was arranged for members of the office, headed by Misha Black, to fly to Naples and return to England on the *Orsova* to get first-hand experience of an Orient Line boat in service. The elaborate and careful sign-posting to prevent passengers on the *Oriana* getting lost is only one example of the fruits of the lessons learned on this voyage.

The case of the *Canberra* is different in many details. Sir Hugh Casson's office were called on by Sir Donald Anderson at a much earlier stage in the design process, but were paired with McInnes Gardner and Partners, of Glasgow, perhaps the most experienced office in Britain in this class of work. In practice, however,

McInnes Gardner were chiefly responsible for technical and operational matters, and were often bypassed in the detail design. Although Sir Hugh's office had only a small amount of ship experience, the partners most actively concerned had between them, at some time, either visited or travelled on most of the major liners of the post-war years.

In practice also DRU, while co-ordinating the overall design, designed the major public areas of *Oriana* (which was more than the client had expected of them), in collaboration with Brian O'Rourke and other specialists as required, while the design of the cabins was in the hands of R. D. Russell and Partners, who had already been retained for this purpose. Ward and Austin were called in for additional assistance on the public areas. Entering the process at a fairly late stage DRU were unable to effect many conspicuous changes in the basic structural design, apart from such matters as the moving of doors to different positions in partitions.

Sir Hugh Casson's office divided the work differently, establishing a sub-office under Timothy Rendle which dealt almost exclusively with the *Canberra*. In addition to overall co-ordination, this office was responsible for main and first class public areas, the tourist class being handed over to John Wright, while the cabins, including the crew's, were the responsibility of Barbara Oakley who had worked for P & O in this capacity before. However, there is a modification to this last statement which arises precisely from the earlier relative date at which the co-ordinating designers were called in, and a difference between their brief and that given to DRU. They were required, at an early stage, to study and report on cabin planning, and produce a full-size mock-up of their suggestions. This resulted in the 'courtyard' grouping of cabins, and the mock-up group were then furnished, some to the designs of Sir Hugh's office, some by Miss Oakley, some by John Wright, and some by the contractors. These were then studied by the management of the line, who selected what they felt to be the best ideas from each, and then handed over the whole job, with their recommendations, to Miss Oakley for development and completion.

The co-ordinating designers were also asked to work with John West, the naval architect, in suggesting improvements to the superstructure of *Canberra*, which again would not have been possible had they entered the design process at a later date. Several refinements were proposed which, though not large in relation to the ship, considerably improved certain areas as seen by the man on the deck—shape of swimming pool, ratio of solid to void around covered decks, degree of overhang of one deck above another, and so forth—and helped to give the ship a more distinguished profile. But in all matters of superstructure to-day, the architect and the naval architect alike are at the mercy of the aerodynamicist. The square 'architectural' form of the older type of superstructure, so beloved of Functionalist propagandists of the Twenties, by its very aerodynamic inefficiency threw much of the wind clear of the decks, but the smoother, rounded shapes of a modern boat do not, and the extended fairings behind mast and funnels of the *Canberra* are not 'styling' but necessary wind controls,

as are the glass screens that appear at various points on deck.

Something similar applies in the vexed question of ceiling heights and the distribution of rooms. This has been commonly discussed in the recent literature as an area of direct agreement or disagreement between the interior architects and those responsible for the design of the hull. Unfavourable comparisons have been drawn between the work of British interior architects since the War, and those before 1939 (or those responsible for the new French liner) who apparently had no difficulty in insisting on, and getting, double or triple height ballrooms, etc., right in the middle of the ship. Where *Oriana* and *Canberra* are concerned, the absence of such rooms does not mean that the interior architects failed to demand their rights; simply that unlike Cunard or French Line prestige boats, they do not enjoy government subsidies and must make every cubic foot of space pay its way. However, by being early on the scene, Sir Hugh Casson's office again had the advantage, and were able to vary ceiling heights and positions of partitions within modest limits.

What emerges from adjustments and negotiations such as this is an earnest of the interior architect's position in the programme and process of designing such a ship. Demands that he be called in 'right at the beginning' are somewhat vacuous: the design of a large ship is at all stages a matter of logistics under high pressure, and basic decisions are often taken in an order and at a speed that bears no relation to normal land-based practice. The ordering of steel must be put in hand while the earliest discussions of the design are in progress, the keel laid before the form of the superstructure is settled, and so on. Thus an interior architect may enter the process some time after the 'beginning' and still be in time to influence the design to a noticeable extent. On the other hand, the period of construction is one in which a vast sum of money (£14 m. for *Oriana*, £16 m. for *Canberra*) is tied up in a project which is not showing a halfpenny profit, and the pressure to conclude the work and get the boat into service is therefore overwhelming. The interior designer must integrate the conception of designs, their approval and agreement with the client, and the production of working drawings, with a tightly-phased programme of construction and fitting out, in which, at any one time, as many as three thousand tradesmen may be working on board the ship.

Similarly, the structure into which his interiors are fitted differs conspicuously from those on land. It does not, indeed, have a regular rectangular planning module such as a large building invariably possesses to-day. There will be few flat floors, and fewer upright walls and square plans, particularly in the cabin areas; on the other hand, the vertical frames of the ship's skin will occur at reliable thirty-three-inch centres or thereabouts and the rest of the structural skeleton follows—no very major mental adjustment is needed for the land-based architect to find his sea-legs for ship design. More surprisingly, in view of the fixed ideas entertained by those who demand that the interior architect will have to make major adjustments if he is to be integrated into the design team along with the naval architects and specialists, is the discovery that

he is to work with very similar contractors (the same firms, in some cases) as on land, and that substantially the same kind of woodwork details, for instance, and working drawings will serve for ship interiors as for an hotel or office-block.

When these points are taken, it will be seen that the most successful and useful contributions that a good interior designer can make to a ship do not necessarily depend on dogmatic demands for his integration into the design team from the very beginning, nor do they necessarily depend on his being able to work closely—at the technical level—with the naval designers (though obviously he must join the team in time, and must be capable of working sympathetically with the naval side, and they with him). Operationally, structurally, and in terms of special skills involved, there is a reasonable frontier to be drawn between the domains of the two kinds of designer, even if it cannot be a hard and fast line.

And when this point is taken, another point of narrow dogma must crumble with it—a doctrinaire insistence on a 'ship-like' character in the interiors. THE ARCHITECTURAL REVIEW has campaigned for such a character in the past, but not in the narrow sense of using what are supposed to be 'ship-like' materials only: teak, brass, rope. . . . Ships are not built of those materials any more, but of steel, aluminium, plastics—something which has been honestly recognized in such ships as the *United States*. The traditional wisdom of the ship-fitting profession, as epitomized in the views of Patrick McBride of McInnes Gardner, probably goes too far in the other direction: 'What the public want is an hotel feeling . . . we could give them a ship feeling by taking ducts through the public rooms, or making it look like the *Cutty Sark*, but design ashore and afloat can be exactly the same.'

Of course, they *cannot* be exactly the same for the reasons set out at the beginning of this article. The design of ship interiors starts by posing an array of functional and environmental problems that do not arise on land; the fairly low head-rooms, even above the largest floor areas, the cambered decks, the restrictions on the size of portholes, the canted walls and curved plans, all introduce spatial characteristics not found in land-based structures. Even a designer who set out to design a ship like an hotel would be frustrated by these exigencies, and most of the worst disasters of British ship interior design stems precisely from trying to design a land-type environment inside a ship structure that requires an utterly different approach.

A ship-like interior starts from the unique conditions of ship-board life and ship-board spaces, and becomes expressive in so far as it enhances the life that is lived in those spaces. It needs to be businesslike and direct, particularly in the cabins, and mindful of the sea (as in the courtyard grouping of the *Canberra's* cabins, which give every cabin a seaward view). In the public areas it needs to make excessively wide and low rooms humanly comprehensible before it begins to play games with port and starboard lanterns to remind passengers of something that they know already—that they are on a ship. Indeed, if ship interior architects would stop imitating hotels or falling over backwards to prove they *have* stopped imitating hotels and approach their design problems with the same honesty and purpose

as the best hotel architects, a convincing shiplike character would emerge without strain and equivocation.

Where *Oriana* and *Canberra* are most conspicuously successful is where this kind of result has emerged from this kind of thinking. The decoration of rooms is based on their use, and stems from the way they work; rooms opening on to the deck or lit by portholes giving on the sea are designed to give a sense of being part of the ship structure; wherever possible a strong sense of a particular place or location has been given, but at the same time the fact that the designers have had some hand in the choice of all equipment seen or used by passengers means that there is equally a sense of the visual unity of the whole ship. On both ships, the interior architects have made extensive and telling use of the work of painters and sculptors; on both ships, lighting has been used not only to illuminate but also to accentuate the character of rooms, or even to make that character adjustable to simulate day and night in certain areas without natural lighting.

Many of the lessons to be learned from the success of these exercises are obvious enough, and doubtless

the offices involved have learned theirs already. It would be a great waste of research and accumulated experience if it were not followed up while the experience is still fresh in their minds; the momentum would be worth sustaining, the more so since John West, the brilliant young naval architect of *Canberra*, feels that only the surface of the problem has been scratched as yet. Yet leaving all this on one side, the lesson for shipowners remains; by employing a good designer, trusting him and supporting him, they can have a ship that works better and looks better, and the way in which it looks better is crucial. The aims of ship-owning may still remain what they always were, to make prestige and money, but the business of carrying passengers by sea has been transformed completely since the *Queens* were commissioned. The shipowner now has to match his wits against, not only other shipping lines, but against the *Comet* aircraft and the 707 and the enormous prestige of jet travel. But he also has to match his wits against Hilton Hotels International, and other manifestations of a new sophistication among the travelling public. First class modern design is one of his fighting margins.

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THE INDUSTRIAL LABORATORY IN A RURAL SETTING

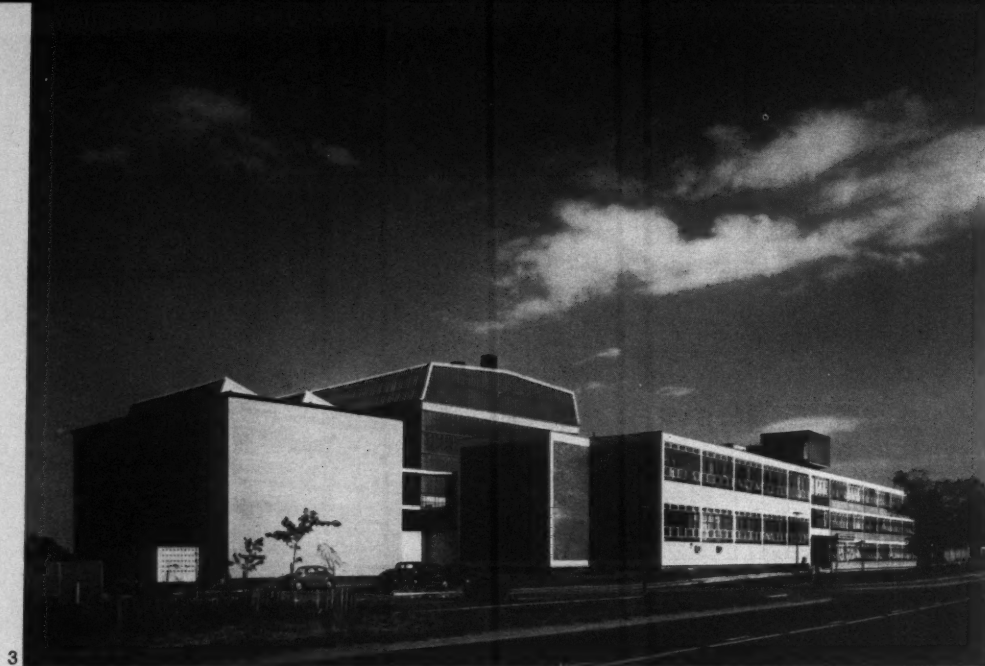
1. Industrial Offices and Laboratories, Harston, Cambridgeshire

ARCHITECTS: EDWARD MILLS AND PARTNERS

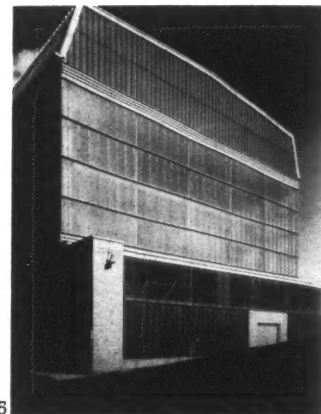
1 (above), aerial view from the east. 2, looking past the cloakroom block to the offices and laboratory block.



2



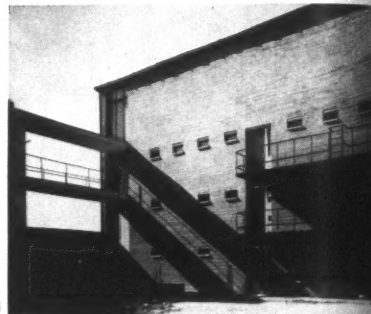
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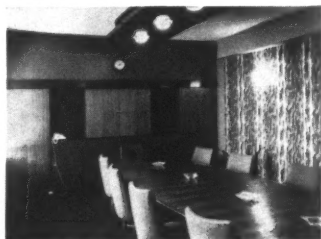


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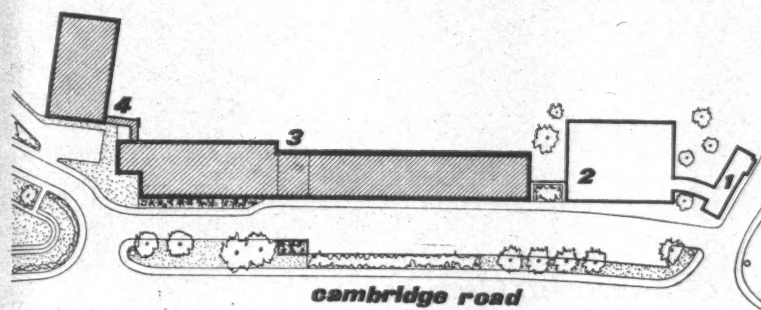
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3, general view from the north-west. 4, entrance to the main building, with offices on the right and laboratories on the left. 5 and 6, front and side elevations of the pilot plant building. 7, the interior of the boardroom.



7

INDUSTRIAL OFFICES AND LABORATORIES, HARSTON, CAMBRIDGESHIRE



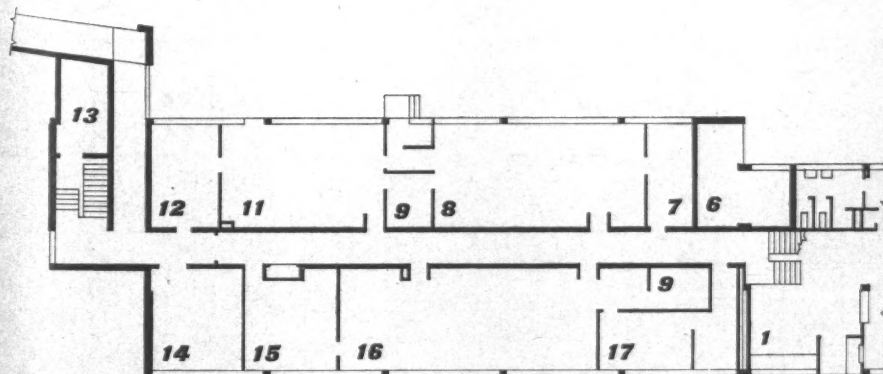
site plan: 1. gatehouse. 2. cloakroom block. 3. office and laboratory block. 4. pilot plant building.

This group of office, laboratory and pilot plant buildings is for Fisons Pest Control Ltd. and is designed to meet the present and future needs of the technical and administration side of the firm's chemical production at Harston and provide a screen along the main frontage of the works to the Cambridge Road. In the post-war years, when the Cambridge planning authorities became alive to the growth of the Harston works, they endeavoured by strict control and by granting only short-term planning approvals to limit or stop any further buildings on the site. An appeal

was made to the Minister, which was allowed, but certain conditions on future development were imposed, one of which was the erection of a frontage block to improve the appearance of the works and screen the chemical plant from the main Cambridge Road.

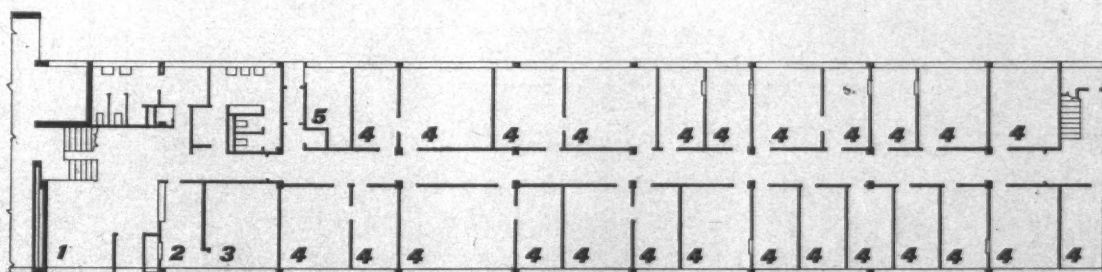
The first stage in the new development was the erection of an up-to-date ablution and cloakroom block, which was given priority on medical grounds and to provide general welfare facilities. This initial phase also included the resiting of the main works entry and the erection of a new gatehouse and control point for inward and outward traffic from the works. The gatehouse is sited to enable clear vision to be obtained along the whole frontage. The second and third stages (illustrated here) contained the new laboratories, offices and a pilot plant building and these were in fact constructed as one continuous operation. A further improvement to the frontage has been the remodelling of the entry from Mill Lane to the north of the new buildings and the closing of a private slip road which originally cut across the frontage. The office block is in three storeys, the laboratory unit in two storeys, and the pilot plant building is single storey—all are connected. The structure is reinforced concrete cast in situ with specially designed foundations to suit sub-soil conditions.

Quantity surveyors: Leslie W. Clark & Partners.
Consulting engineers: Ove Arup & Partners.

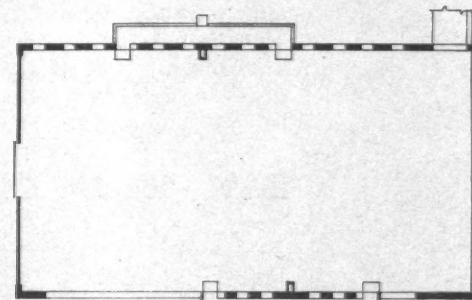


ground floor plan (north section) laboratory block

- key
1. entrance.
 2. enquiries.
 3. GPO plant.
 4. offices.
 5. electrical distributor.
 6. plant room.
 7. product control.
 8. shift laboratory.
 9. balance.
 10. sample delivery.
 11. day laboratory.
 - 12, 14. laboratory stores.
 13. electricity sub-station.
 15. instruments room.
 16. analytical laboratory.
 17. chief analytical chemist.



80 60 40 20 0 10
ground floor plan (south section) office block



plan at 8 ft. 3 in. above floor level, pilot plant building

2. Research Laboratories at Passfield, Hampshire

ARCHITECTS: THE ARCHITECTS' CO-PARTNERSHIP

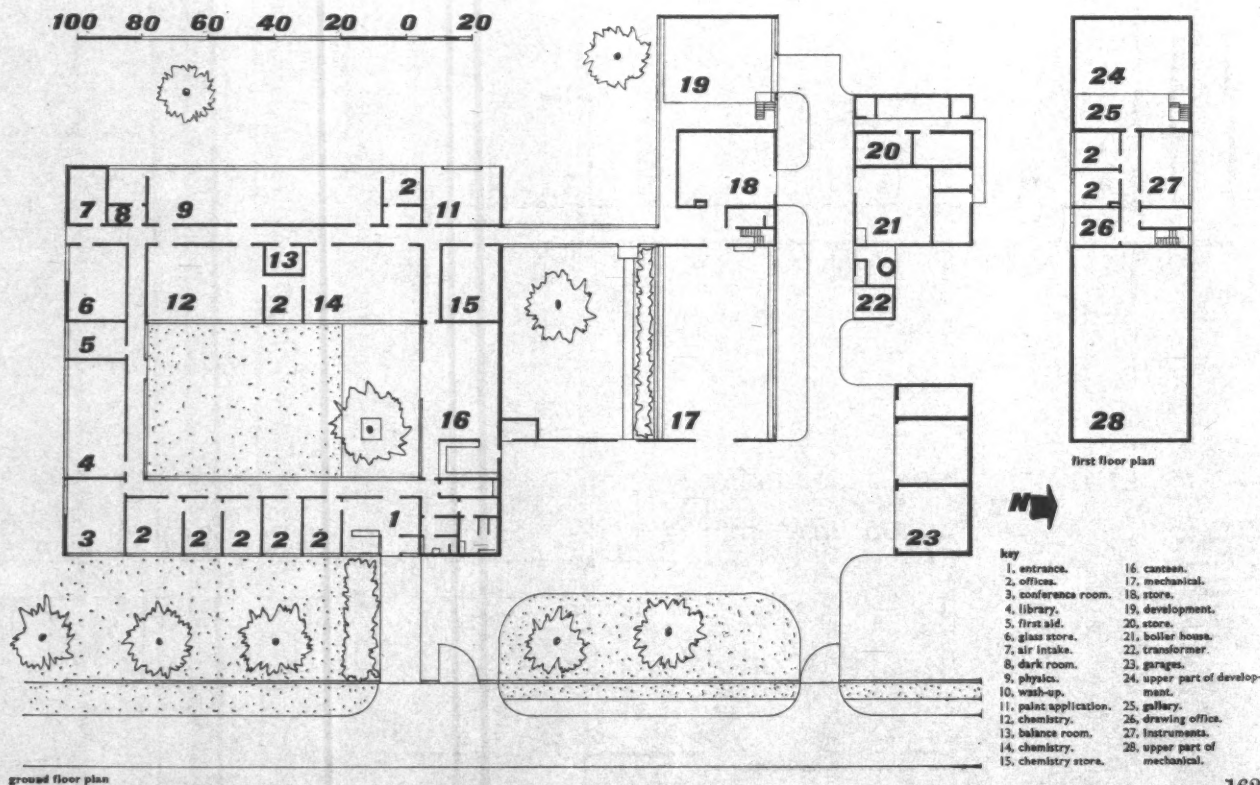
These buildings, which are near Liphook and are for Metal Containers Ltd., contain laboratories, offices and workshops to house approximately fifty scientists and administrative staff. The offices and laboratories are planned round a grassed courtyard, which has a canteen closing the north end. The workshop and development room and the engineer's and draughtsmen's offices are in a separate building.

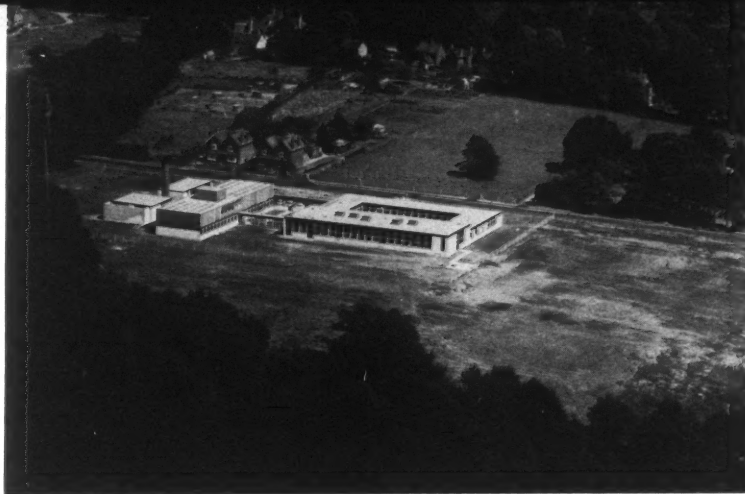
All buildings are designed for future expansion; the offices and laboratories by the addition of another court, and the workshops by increase in length. The research work to be done requires a very clean atmosphere, and the building had to be sited away from towns and at least twenty miles from the sea. Speed of building was

essential, and a negotiated contract was used to give an early start, the working drawings being done as building work proceeded. Work on the site started in November, 1959, and the building was partially occupied in November, 1960.

It is of steel frame construction with columns at 12ft. centres. The walls are generally of white gault brickwork, but the upper part of the workshop building is faced in western red cedar boarding. The roof is built-up bituminous felt, finished with chippings and laid on woodwool slabs carried on timber joists spanning between steel beams. The windows are steel framed in timber surrounds. Heating is by oil-fired boilers.

Quantity surveyors: Davis, Belfield & Everest.





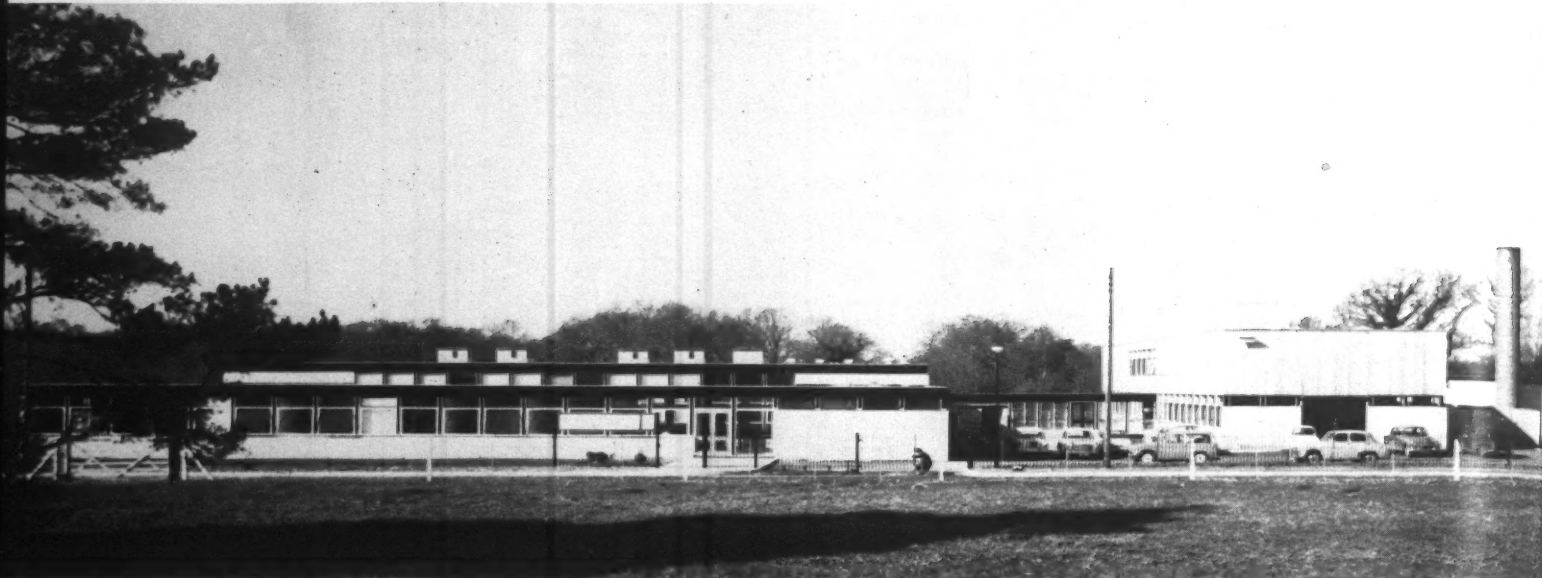
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1, aerial view from the west. 2, close-up of the workshop block from the south-east, with the corridor link to the laboratories on the left.

2



RESEARCH LABORATORIES AT PASSFIELD, HAMPSHIRE



3

3, from the east : the offices and laboratories are on the left and the workshop block is on the right. 4, looking north in the internal courtyard, with the laboratories on the left and the offices on the right. Opposite page: 5, the

entrance hall in the office wing. 6, looking from the entrance hall across the courtyard to the laboratories ; the windows are steel framed in metal surrounds. 7, the canteen in the office block.

4





5

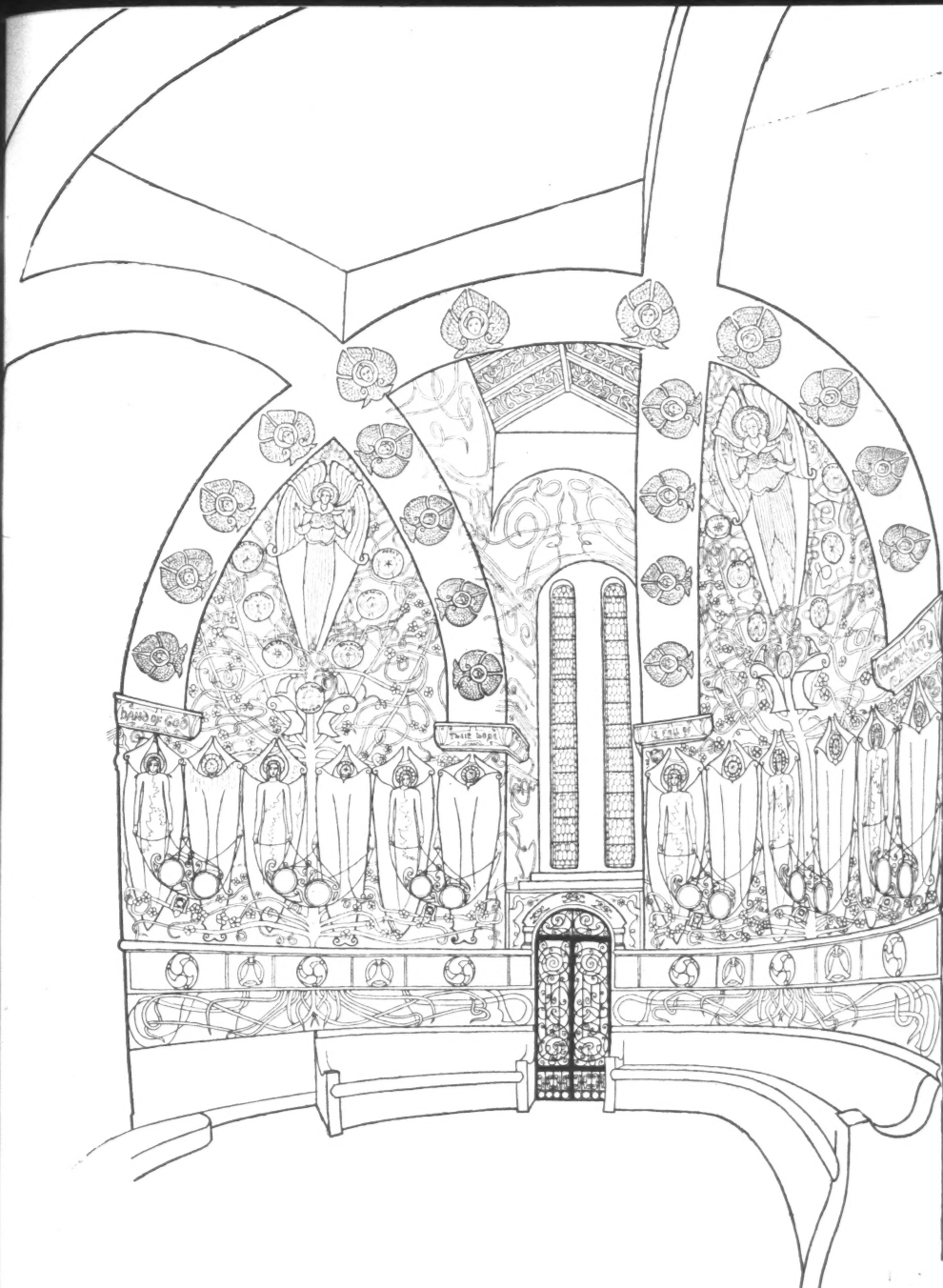


6



7





WATTS CHAPEL

One of the few surviving monuments to the ideals of the Arts and Crafts movement: the chapel at Compton, Surrey, designed in 1896 by Mary Watts, wife of G. F. Watts, R.A. The facing page shows the remarkable gesso-work that covers the whole of the interior; it was modestly described by Mary Watts as 'glorified wall-paper.' Above is a drawing of the interior by John Furnival, who also made the drawings on pages 168, 171 and 172.

Buildings can arouse all kinds of emotion: admiration, awe, derision, depression, amusement. . . . For straightforward astonishment it is unnecessary to go further than Compton, Surrey. On the altar in the Watts memorial chapel, an inscription states 'This chapel, designed by Mrs. Watts wife of G. F. Watts, O.M., R.A., was built in 1896 by her and the people of Compton.' This alone would be enough to whet the curiosity, but when seen in its context further information about this remarkable building and its builders becomes imperative. For, instead of being homespun, amateur, or earthy, as might justifiably be expected from such a description, it is an expert, highly successful if unusual realization of a unique idea. It also forms part of an interesting (historically rather than architecturally) group of buildings which must be one of the few remaining monuments in brick and mortar to the ideals of William Morris and the Arts and Crafts Movement.

Towards the end of his long life, Watts,* who for many years had been the grand old man of British painting, but who was still working at a furious rate, decided to leave London for Compton. It would be truer to say that Mrs. Watts decided; this remarkable woman apparently had the happy knack of not only making the right decisions for Watts, but of also being a charming and sympathetic wife. Thirty years younger than her husband, Mary Watts seems to have provided the energy and drive which were behind the creation of Limnerslease, the house which they built in the depths of Surrey. Both the Watts's were deeply fond of this wooded country and spent prolonged stays with friends here, but Watts, who was now in the 70's, was fussed by visiting. His special diet (under-cooked beef and fresh cream), the fear that he might be ill while away and cause further inconvenience to his hostess, and, above all, the paraphernalia of packing and unpacking, worrying about missing trains (all of which time and energy might have been spent painting),

* For biography of G. F. Watts see *The Laurel and the Thorn*, by Ronald Chapman (Faber & Faber).

must have made things difficult for everyone. Therefore, Limnerslease was the perfect solution. So perfect that the Watts's soon left London altogether and made it their permanent home. This meant that in addition to the studio, a gallery must be built to house Watts's paintings. Of these buildings there is not much to say architecturally; the house with its mock timbering was in the vanguard of thousands that have since come to Surrey. It has a fine site high above the other buildings; it must have been a pleasant place to live in, being so closely surrounded by, yet above, the trees (the Watts's apparently would not allow a single tree to be felled when the house was built). It was designed by Sir Ernest George and is now converted into flats.

The house, which is about half a mile north-east of Compton village, decided the siting of the gallery and potteries and hostel for potters that were to follow it.

This was most fortunate as the group forms a separate entity and does not compete with the old village and the remarkably fine Norman church. The pottery (which only ceased to function in the 1950's) was another of Mary's ideas, although closely backed by Watts. She had run a pottery class for workers in Whitechapel. The idea of training the locals crystallized when a new burial ground and mortuary chapel were needed for the village. It is best described by Mrs. Watts in her *Life of G. F. Watts**: 'A new interest had grown up for us both in the last two years, the building of a chapel for the new village burial ground, his gift to Compton. He did not design it, but suggested that if we proposed to hold a class, the people of Compton might like to come to it and be taught to make simple patterns to decorate the walls; so that by this means a special and personal interest in the new graveyard would

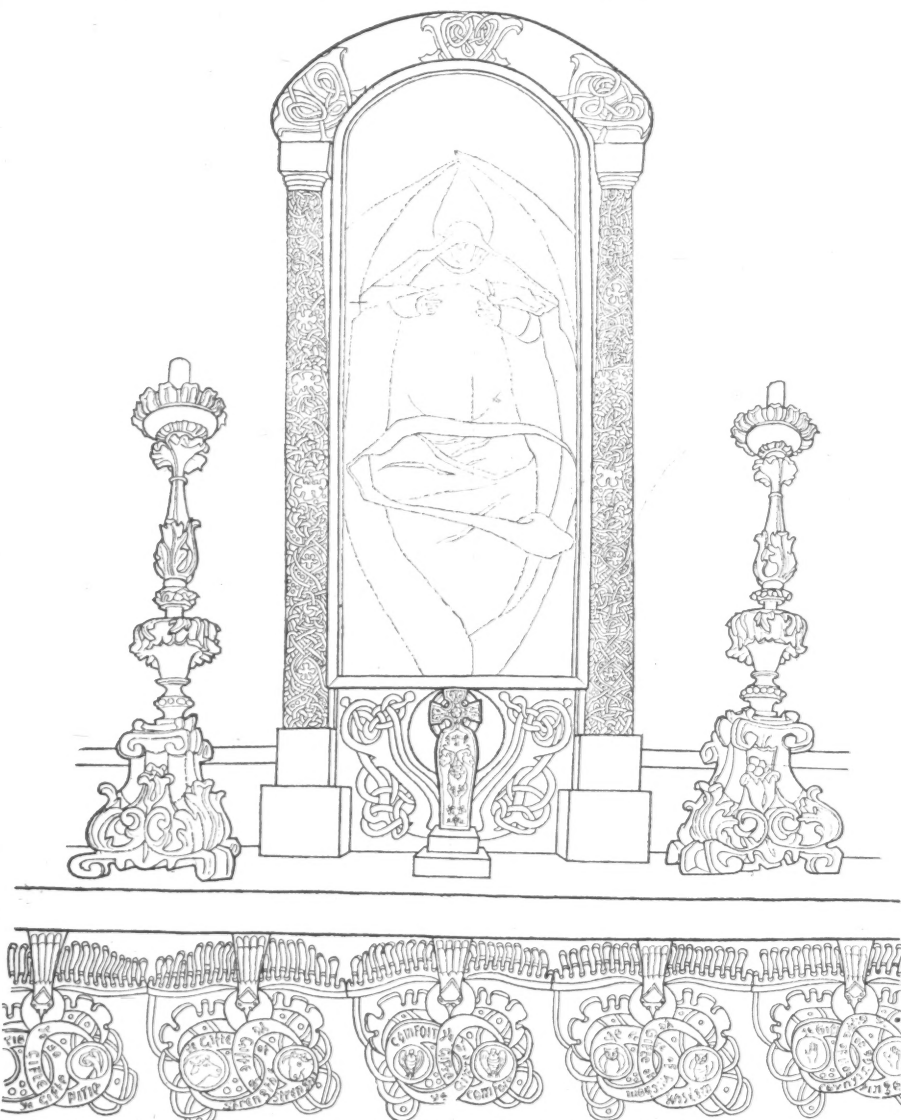
* Published by Macmillan.

be acquired by the workers.' This mild description and a slim volume called *The Word in Pattern**, also by Mrs. Watts, are about all that is known to have been written about this remarkable chapel. Far from being amateurish, it is a building of remarkable expertise not only in execution, a factor which could be contributed to the skill of the builder, but in the assurance and mastery with which the complexity of the original idea has been disciplined so that the parts never detract from the whole. At the end of *The Word in Pattern*, a list is given of those who had worked on the chapel (seventy-one men and women worked on the terra-cotta, often several members of a family are mentioned), but the only designer mentioned is a Mr. George Redmayne who was responsible for the door hinges. From this it seems reasonable to assume that Mrs. Watts designed the building without professional help.

The chapel stands on rising ground looking across meadow land to Compton village. It is approached from below up a narrow curving path which is lined by black Irish yews. These trees hide the building until you are almost upon it, and this, together with their blackness contrasting with the very red brick of which it is built, add drama and surprise to the approach. The bricks, which were made locally, may also have been a surprise to Mrs. Watts, who, if one can judge by the other buildings, favoured mellow materials. They still look as if fired yesterday and have the texture and colour of a recently rubbed rubber-brick. This is an advantage because much of the building is faced by terra-cotta mouldings, and these, which naturally will not weather, and the plain brickwork, have remained approximately the same colour, giving the wall surfaces a unity that would never have been retained if a normal brick had been used. Since it is a small building, whose surface is deeply broken by shadow, the green English countryside can take the shock. The roof is covered with Roman tiles. It is probably these, and perhaps the yew trees which stand as sentinels as cypresses do in Greece, rather than any architectural style, that makes the exterior slightly reminiscent of a renovated Byzantine church (e.g. those in the fortress of Mistra.)

Approaching from below, one is right up to the door and already too amazed by the galaxy of angels and symbolism in the terra-cotta over the door to pause before plunging inside. The impression is of being inside a circular building with massively thick walls, and, fleetingly only, of a domed ceiling. Colour and low relief pattern cover almost every surface, and an extra-

[continued on page 172]



The altar faces the entrance; above it is a smaller version of Watts's painting 'The All Pervading' and along the edge of the altar slab is the description 'This chapel, designed by Mrs Watts, wife of G. F. Watts, O.M., R.A., was built in 1896 by her and the people of Compton.'

* Published by the Astolat Press.

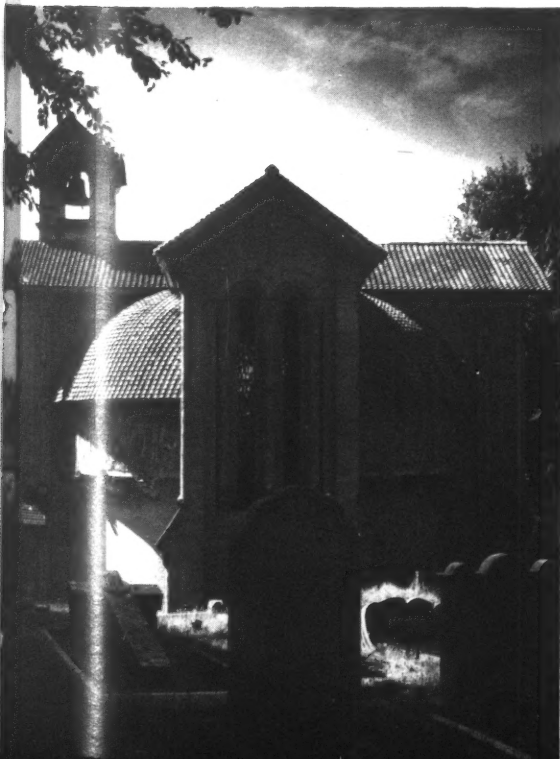


1

1, detail showing the terra-cotta decoration at the top of a segment of the drum and at the ends of the arms of the cross. The cruciform plan, with segments of a lower drum imposed on it, is clearly shown in 2, but on entering the building, the dominant cross plan is lost and the impression is of being in a circular building with very thick walls. The cloister, 3, lies above the chapel.

2

3

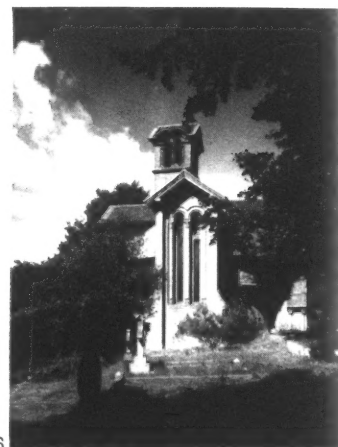




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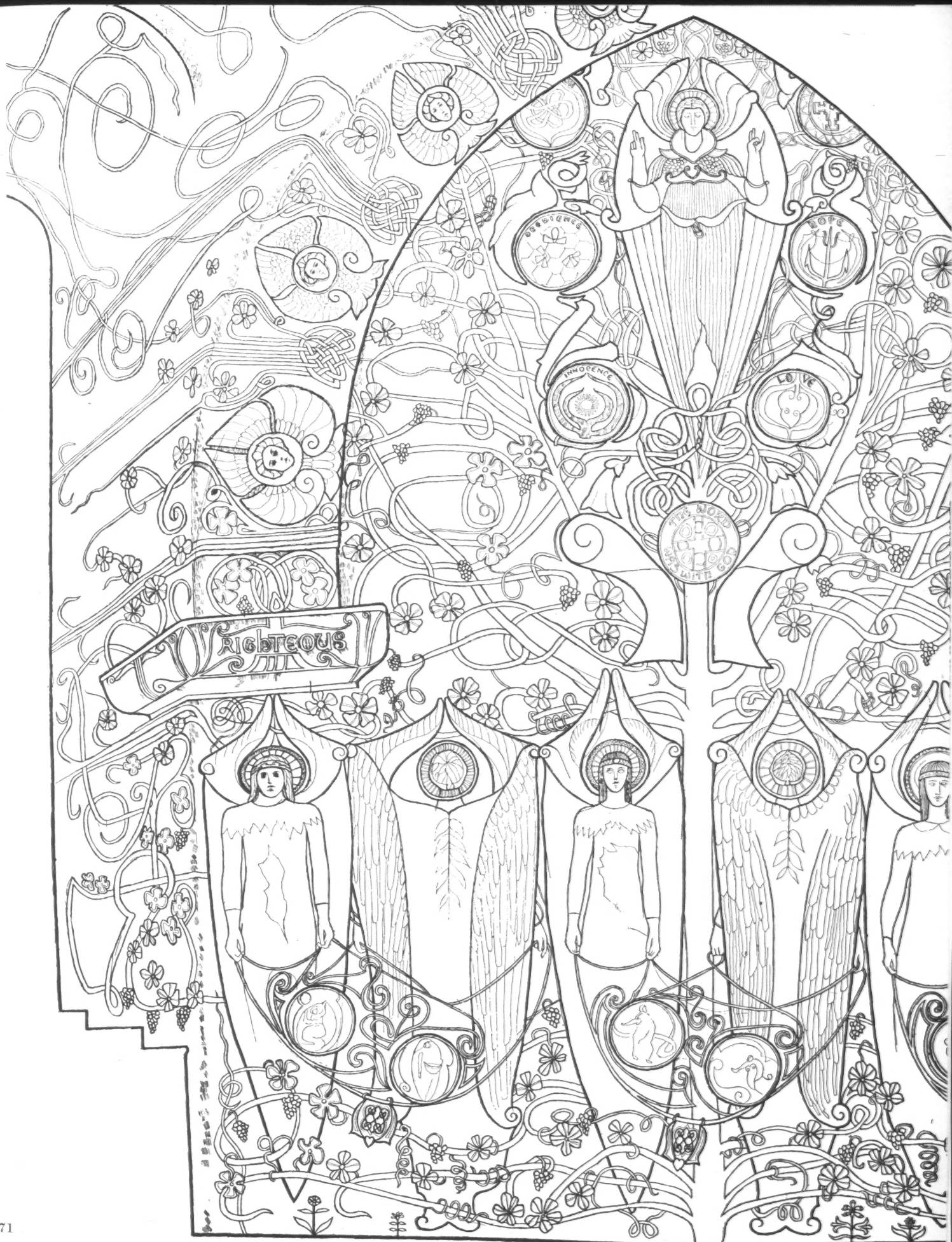


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4, the well head near the gate and, 5, the seats round the chapel were also designed and made in the Watts' workshop. 6, both the unexpected architecture and unweathering red brick of the chapel have been absorbed with surprising ease by this most green and English landscape. 7, having followed a curving path lined with dark Irish yews, one comes suddenly on the richly decorated entrance.



7





Four arches support the main roof where the walls of the cross have been cut by the lower drum (note the timber rafters outside the crossing).

continued from page 168

ordinary richness is achieved. It is a mixture of Bavarian Rococo and Art Nouveau with colours taken from the sea bed. The light, coming in at high level and catching remnants of the gold on blue-green paint, deepens the illusion of being in a pool of clear water.

But these are impressions only. What has in fact been most ingeniously designed is a cruciform plan on which is imposed a thin drum of 13½ in. brickwork, approximately 24 ft. in diameter. The arms of the cross project 6 ft. 2 in. beyond the drum, and rise the full height of the building, while the drum is only about two-thirds the height of the main walls (for this reason, the projecting 'transepts' cannot be thought of as buttresses). The window openings are in the end walls of the cross. The impression thus given to anyone inside the building is of immensely thick walls, since the window reveals are the full depth of the arms of the cross from its extremities to the inner surface of the drum. This ingenious if unintentional trick seems an economic way to give apparent weight of masonry with minimum material.

The roof is simply a cross-ridged structure supported on four semicircular arches where the drum cuts off the walls where it meets the cruciform. There is clearly no excuse for imagining a dome, even if the building was entered blindfold with no awareness of its outer form; however, the circular plan of the interior together with the round arches decorated in the same material as the walls give this fleeting illusion.

The decoration of the interior suggests a woven tapestry. It may have been inspired by Watts's saying: 'All creation is the garment of God'; certainly all parts of the design were of deep significance to its creator. From the stone seat that runs round the inside of the building, upwards, every inch of the interior is decorated. Angels, medallions, children's heads, take

their place in an orderly but flowing design of abstract strap patterns of Art Nouveau, in low relief. 'A solid plastic material called Gesso, its substance plaster of Paris in which a fibrous material is soaked' was the medium in which Mary Watts worked. In places the fibre (like string) has been built up to give reliefs up to ¾ in. deep. This depth gives pattern and life even where the actual paint has faded, and the richness achieved is remarkable. It is sad that the only drab thing about the chapel is the picture specially painted to go above the altar. It is a smaller version of Watts's 'The All Pervading' and badly needs restoring. Mary Watts's modest comment on this astonishing achievement is 'He (G. F. Watts) had not before realized what I aspired to do in this glorified wall paper.'

The decoration of the exterior is extremely complex and is based largely on Celtic patterns. Almost every design is symbolic, and anyone wanting to study it in detail should refer to Mrs. Watts's explanatory book. It must be one of the last great craft efforts; each piece of terracotta has its special significance and few if any are alike (each of the fifteen angels over the door, to take but one instance, has a different face). But what really astonishes is the organized restraint which has prevented this highly imaginative Victorian woman running riot with terra-cotta; the brickwork of the drum, apart from the corbelled frieze, and a large part of the projecting cruciform are built in plain brickwork. In other words, the walls are either highly decorated or completely plain. In this it has something in common with the exterior of Seljuk buildings, whose decoration is so intense that it can only be taken with large areas of plain walling as a foil. The bricks, incidentally, are only 1½ in. deep; the small scale thus achieved gives the impression of a larger building.

In the graveyard there are a number of graves made by the potteries, and also a cloister (very inferior to the chapel). The hostel where the non-village potters lived is now the curator's house. Both it and the Gallery* (designed by Christopher Turner) were originally thatched. The Gallery contains a large and varied collection of Watts's paintings. That they are varied is hardly surprising when it is remembered that he lived during five reigns, including the longest in British history, and worked with extraordinary energy through most of them. The fascinating paintings (all by Watts) range from what might well be late eighteenth-century portraits onwards to early twentieth—Picasso was already twenty-five when this child of George III's reign, friend of Ruskin and sculptor of Tennyson, died.

* The Gallery is open every day, except Thursday, from 2 p.m. to 5 p.m. (or dusk). On Wednesdays and Saturdays it is also open from 11 a.m. to 1 p.m. Compton is about two miles west of Guildford.

Church at Atlántida, Uruguay

DESIGNER: ELADIO DIESTE

This is a parish church serving a large rural area about 40 miles east of Montevideo. It seats 300, but has floor space enough for a congregation of 500 on special occasions. It is planned so that it can be attended by only one priest, though there is room in the chancel for several to officiate on special occasions and for the main ceremonies of the Roman Catholic liturgical year to take place with proper dignity.

The interior is a simple rectangular space with the

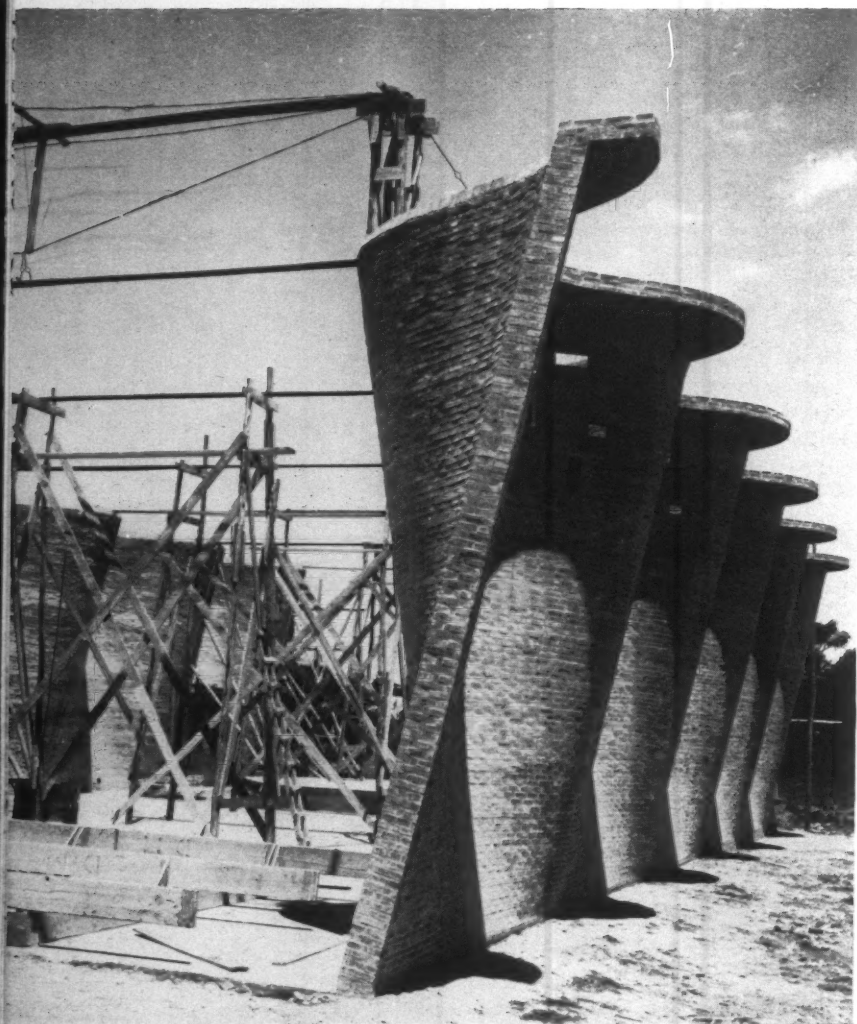
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BRICK SHELL CHURCH

1 distant view of the entrance, 2 close-up of the nave wall.

2

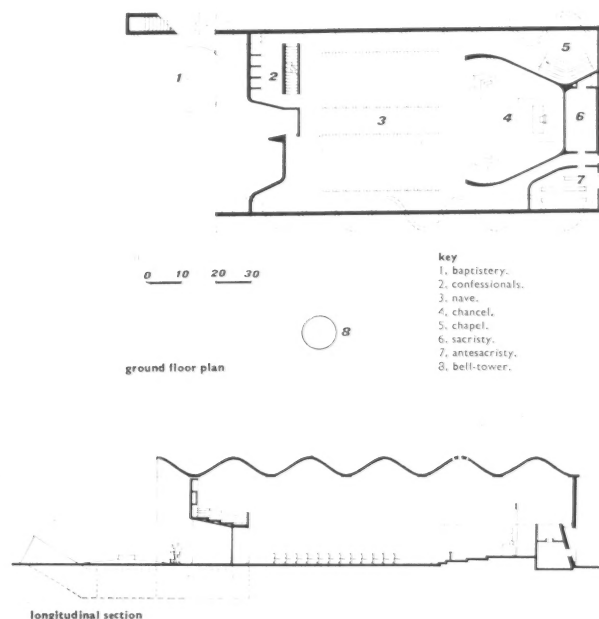




3

brick walls undulating in plan and with the chancel area defined by its own enclosing walls, which also screen off the Lady Chapel and the antesacristy, the sacristy being behind the chancel. The altar is a rough boulder, dressed only on its upper surface. Windows high up in the side walls direct the light from behind the congregation into the chancel. There is also an aperture in the vaulted roof above. The end wall of the sacristy is slanted inwards (see section), allowing indirect light to be thrown on the wall and vault above the altar. The choir occupy a balcony at the opposite end of the church, which also forms a shaded porch. The wall at this end is of open reinforced brickwork with light admitted through thin panels of marble. Alongside the entrance are the confessionals. The circular baptistery is a separate structure, placed underground. The bell-tower is also separate, and will later be the main feature of a square containing the priest's house and a parish hall.

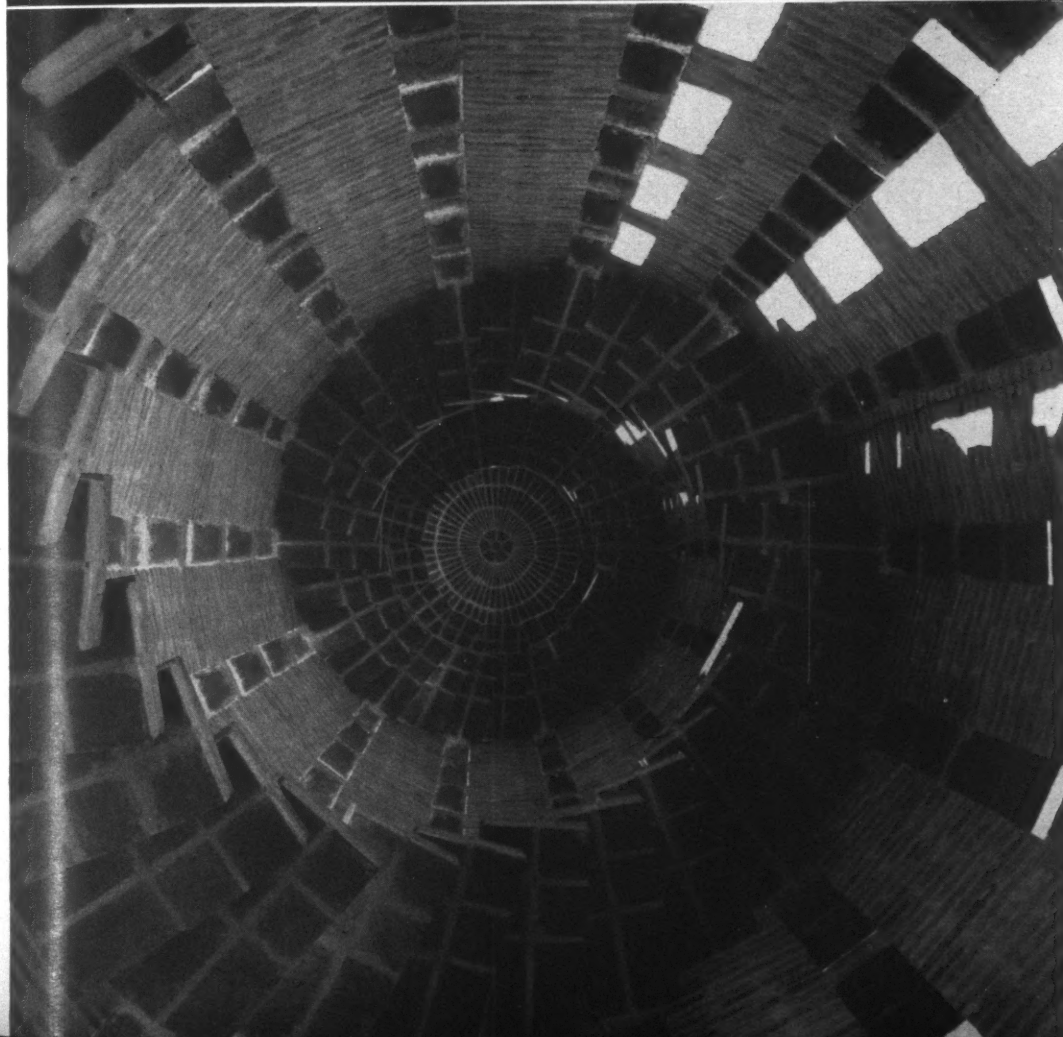
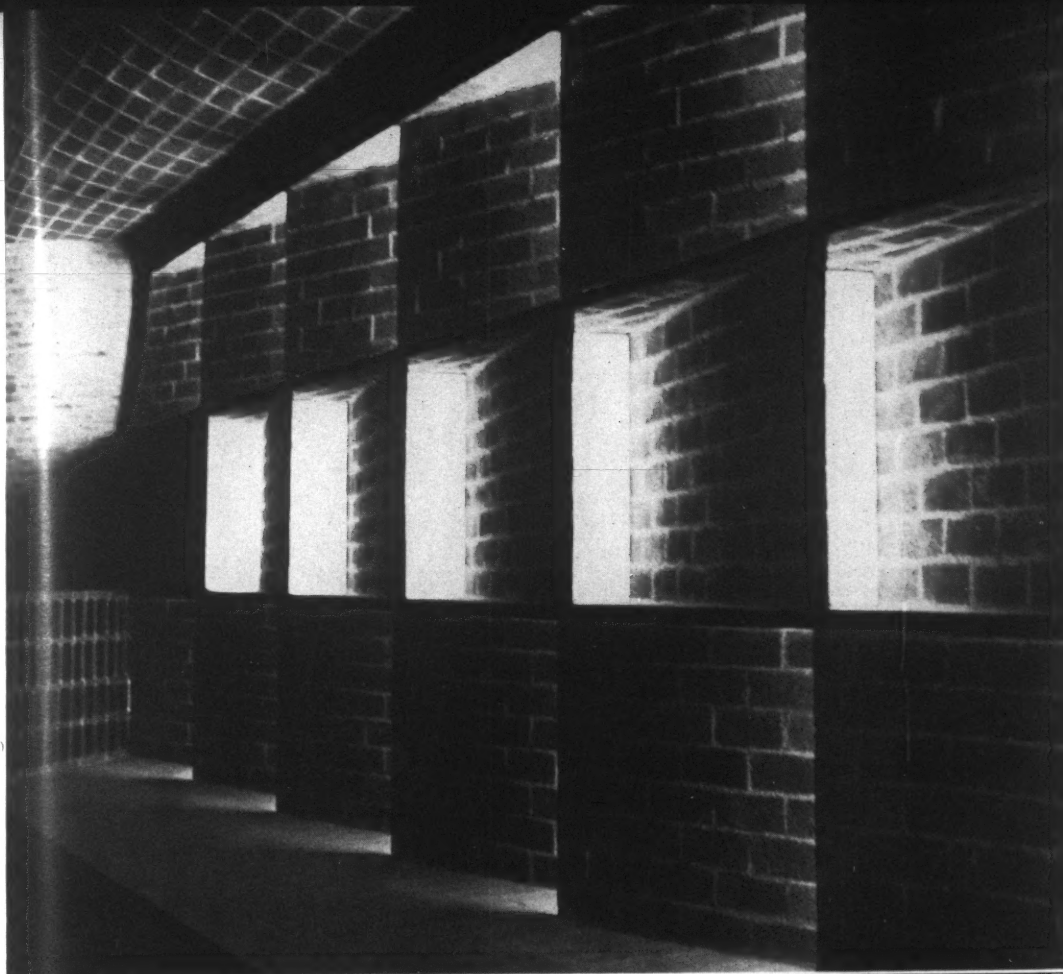
Floors, walls and roof are all of brick, reinforced where necessary and unplastered. Walls and roof together form a double curved shell, covering an area



3, the nave walls under construction. Opposite page: 4, the windows of the choir balcony above the entrance. 5, looking up the interior of the bell tower. 6, the exterior of the bell tower.

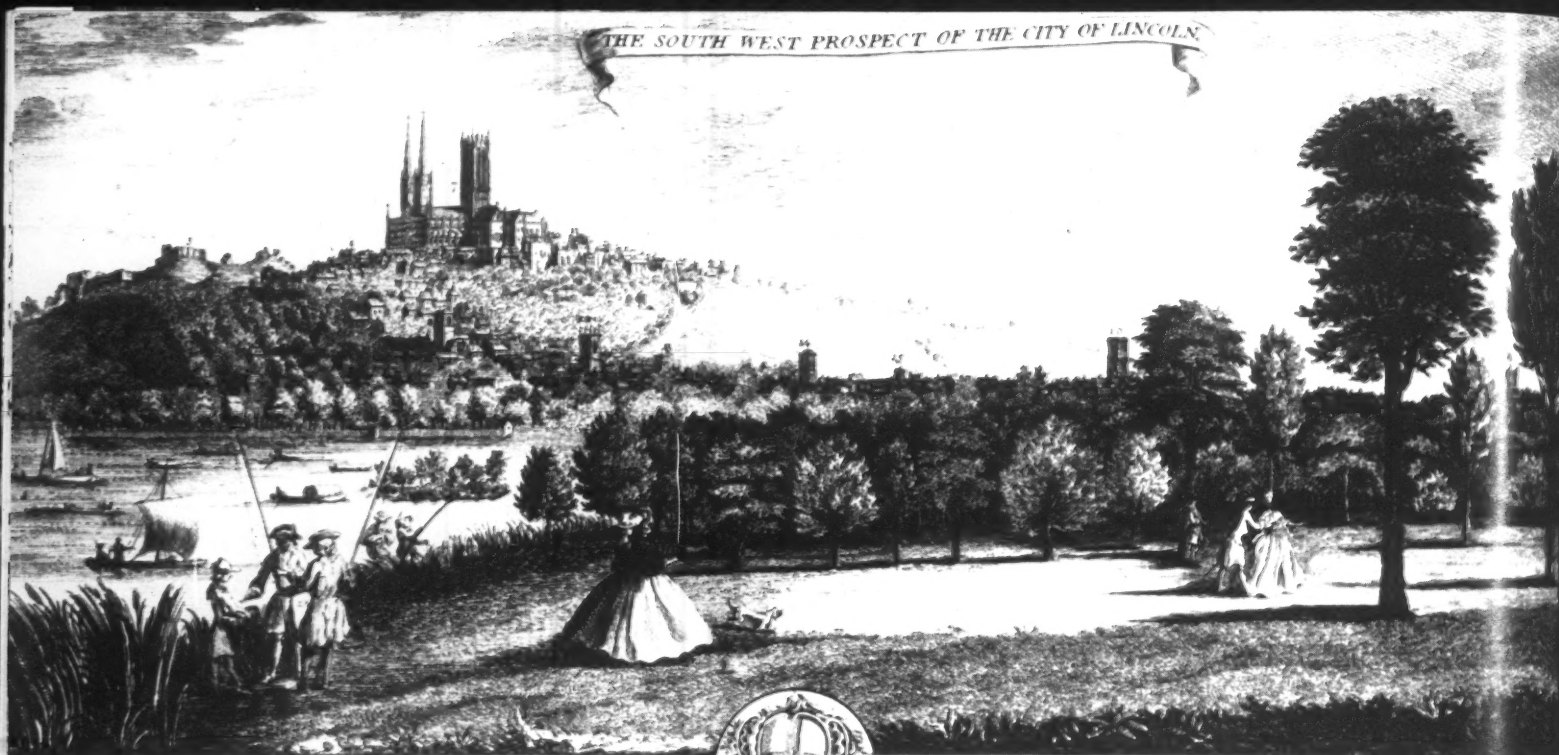
110ft. by 54ft. and resting on closely spaced 6in. concrete piles. Each wall, 23ft. high, is formed by a series of conoidal surfaces, straight at ground level and undulating at the top, each wave consisting of a central segment of a parabola and two half-segments. The walls, which are reinforced with $\frac{1}{2}$ in. steel wire, are 1ft. thick and have a cavity afterwards filled with waterproofed mortar. The walls are crowned by a beam, of mixed brick and concrete construction, which forms the eaves and takes the thrust of the vault.

The vaulted roof consists of two layers of brick, with a total thickness of $4\frac{1}{2}$ in. Its mean span is 53ft., and the rise varies between $2\frac{1}{2}$ in. and 58in., which means that the wave valley is almost horizontal. The tensors which are anchored to the beam at the top of the wall, and absorb the thrust of the vault, are enclosed in this valley. Together with the walls the vault forms a type of shell frame with two hinges which has great transversal rigidity. The bell-tower is wholly of reinforced brick, built without scaffolding. The prefabricated steps of the spiral staircase inside it are cantilevered from the outer wall.



CHURCH AT ATLANTIDA

THE SOUTH WEST PROSPECT OF THE CITY OF LINCOLN



1. St. Andrew's church
2. St. Bartholomew's church
3. The Castle

4. The Chequer
5. Bate Gate
6. Lucy Tower

7. The Minster
8. St. Martin's church
9. St. Nicholas on the Mount

10. The Bishop's Palace
11. St. Margaret's church
12. St. Peter's church

13. St. Benedict's church
14. St. Mary's church
15. St. Michael's church

16. St. Peter's at East
17. Bate Gate
18. St. Botolph's church



The reason for Steep Hill's present state of extreme decrepitude is largely explained by the pair of illustrations opposite. In an aerial shot taken a few years ago, lower picture, the area (dotted) emerges as an intricate tangle of housing, already partly cleared. To-day's view would show much more empty space. This pattern, which can be the basis of our most attractive medieval towns, was here a rather desperate consequence of the Industrial Revolution: for Buck's view of 1736, top picture, shows buildings only on the original Steep Hill, and wooded slopes all around it.

TOWNSCAPE

Ian Nairn

Steep Hill, Lincoln

Steep Hill at Lincoln is a perplexing place. It ought to be magnificent—the cliff side joining the quiet Cathedral city at the top to the sprawling industrial town at the bottom, every street curving and dramatic, every view taking in a foreground of chimneys down below, and a background of parkland sweeping up to the skyline. And there it is, fallen-in, depressed, the old buildings decayed or painfully harsh, an amalgam of the worst Midland and East Anglian attributes: the flatness of the one and the hardness of the other.

That Steep Hill should have got like this was inevitable, and is not a case of shocking municipal neglect. Its topographical history must be one of the oddest in England. The central road, called first Strait and then Steep Hill, is simply a stretch of Ermine Street which the Romans in their bald-headed way ran straight up the side of a cliff: both north and south of Lincoln it runs straight on top of the escarpment for twenty miles or more. It naturally collected buildings—the famous Romanesque houses are both in Steep Hill—but until well into the eighteenth century it remained a ribbon on a wooded hillside: Buck's view of 1736 shows this clearly. When it came to be built on, it was not as a gracious section of a country town but under the desperate pressures of a rapidly expanding population, which in Lincoln produced results as mean and nasty as anywhere in the country. This bit of Georgian England belongs to Crabbe; not to Cowper. Once things were set up in this way, the result was as inevitable as the solution of a quadratic equation. Slow decay, intermittent byelaw replacement, wholesale demolition when the slum clearance acts caught up with it. The question now is not whether Steep Hill ought to be preserved but how it can best be redeveloped, and it is nice for once to have the issue so clear cut. Only two or three of the existing buildings on Steep Hill are worth keeping on their own merits, and the various reasons for retention are purely human, not architectural (no less important for that)—to cause the least possible disturbance, to keep any corner that someone cares for, to recondition where possible (not, I fear, very often) and, particularly, to halt further demolition until some new houses are built on the hill. At the moment, parts of it look like Coventry on the morning after the blitz.

Rebuilding implies some sort of plan, or at least a few basic decisions; on a site like this, the more flexible they are the better—the last thing Steep Hill

needs is some architect's *folie de grandeur*. One alternative, which might be right here but perhaps nowhere else in Britain, would be to return it to its medieval state—a ribbon of houses up Strait and Steep Hill, the rest a great open hillside with plain grass, big trees, and nothing else at all: no asphalt, no flower beds, no fences. Because of the demolitions and the depression, it would be practicable, and in a way it would satisfy the deepest and most profound topographical need of Lincoln—to resolve its Upper and Lower Towns into something more than an exasperating accident. For, after a thousand years, they are still irrevocably split: Upper Town with a quiet village air plus this thumping monument to the thirteenth century's passion to find out all there was to be found about lancets; Lower Town with all the shops, all the industry, all the offices. And from the shops, industry and offices to the nearest proper open space is farther than from Holborn to Hyde Park. Open downland is the last thing I would ever have expected to suggest for Steep Hill, it is something that has grown on me over repeated visits, and it would be as stupid not to mention it as it would to insist that it is the only solution. It happens to move me emotionally, but there are plenty of different ways of cooking a steak.

The impossible grand gesture apart, Steep Hill ought to get back the close, intimate pattern that it has had and is just losing, made hygienic but not spread out, and take advantage of the superb views which the eighteenth century so surprisingly ignored. This must first of all be a place for people to live in

Map of the centre of Lincoln: Steep Hill area dotted.



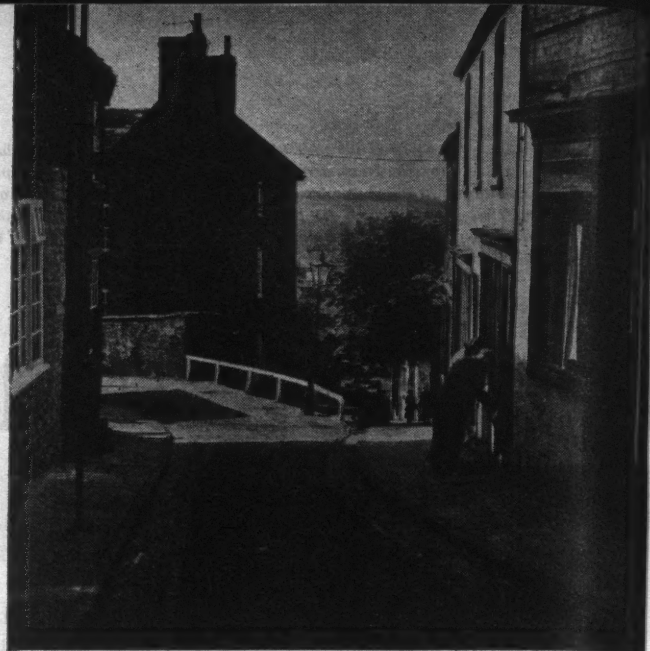
and not a depository, as it is at the moment, for huddled primary schools and ATC headquarters, fenced-off tennis courts, cheapjack garages and small factories. It would build up fairly easily with three basic elements—level terraces along the contours, like those just now being demolished, with a view from at least the upper windows; stepped terraces down the contours, planned with at least one view from a window in the end gable, and tower houses. These would be two rooms thick and four storeys high (basement garage, living, living/bedroom and bedroom); and this idea, so far from being an idealistic dream, is lifted bodily from the only modern house on Steep Hill, designed for himself by H. S. Scorer, the partner of Denis Clarke Hall. Half a dozen of these would give the hill a signature of its own and attract back into the centre of Lincoln the kind of professional person who likes something different. The other inflections are topographical catch-as-catch-can: a little *place* at the join of Steep Hill and Danes Terrace, a new set of steps up to the Minster Yard prolonging Flaxengate, reconditioning even of the polychromed aridities of the 1880's to give a bit of counterpoint and to keep the principle, which ought to be inviolate, that if a person likes his house and takes a pride in it, he has a moral right to remain there, come what may. In the rebuilding, too, it would be good if the colours could become deeper and richer. At the moment the prevailing combination—vermilion and a strident greyish-white—is like a pair of Bach trumpets in different keys, both playing flat. Rose-red and a yellow stock brick would be in the same colour range but would help to dispel the terrifying harshness.

This story has no moral and not much other application: Steep Hill is a unique problem. A bit of a city has simply laid down and died, and nothing could have been done about it until now. This is the exact point when the City of Lincoln can start to remake it. They have shown their enterprise in sponsoring a competition for the Civic Centre; it would be a splendid thing if they could give fulfilment to a part of Lincoln that is as idiosyncratic and English as the jagged lancets in the cathedral nave.

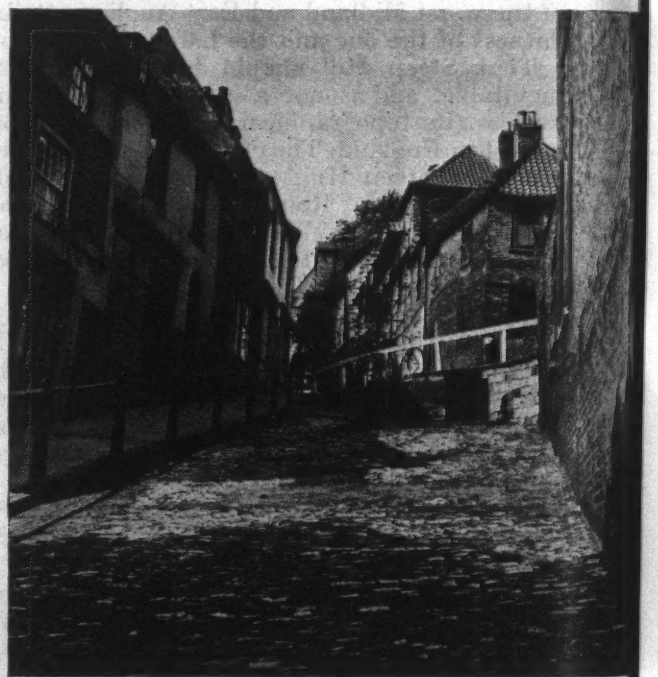


The cathedral from St. Martin's Square. Pretty foreground and splendid background: but what about the middle distance? Parked cars and dereliction.

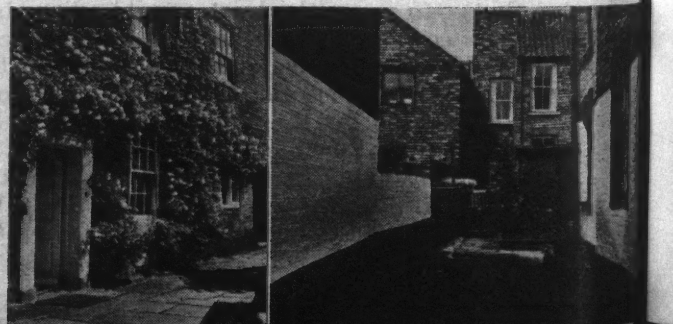
Character



The traditional views down and up the picturesque end of Steep Hill, 1 and 2; curving views accentuated by a brilliantly sited handrail, narrow streets, a five mile view on the downhill horizon. Alas, everywhere else on the hill the pattern has decayed hopelessly or was never even established. The number of lovable, cared-



for vignettes which must be the cell-structure of an area like this is tiny: there is much more humanity in the average bit of East End slum clearance. The human touches do exist, and the two illustrated, 3 and 4, typify nicely the high- and low-income expressions of self-respect. Both are equally vital.



Dereliction

The present state of parts of Steep Hill is more like 1941 than 1961, **5**. All this was probably inevitable. But it is the side consequences that are so depressing—and not at all inevitable; contrasted pathways in the old Steep Hill, **6**, and the new, **7**. More telling still is the terrifying change brought about in the steps by St. Michael's Terrace in two years. It is hardly credible that the two views, **8** and **9**, taken in 1959 and 1961, are of the same place. This is not only slum clearance but the death of a whole townscape.

5



6



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8



9

Replacement

The death of the old Steep Hill would be acceptable if anything worth while had replaced it. But, so far, the results have been very depressing: a temporary school and its attendant tennis courts with the attendant wire netting, **10** and **11**, and miserable factories and garages, **12** and **13**, which give no indication whatsoever that the site is worth any consideration at all. And, alas, Steep Hill can be killed with kindness, also: **14** shows the townscape loss in the more famous set of steps immediately east of Steep Hill created simply by opening out and tidying up a be-creepered wall. Even the copy-book picturesqueness of **15** hints at the eventual danger if people become too cosy and loving in the wrong way.

10
11



12
13



14
15



Opportunity

The overall pattern of Steep Hill, if it is to be rebuilt at all, should be based on terraces along and across the contours, punctuated by tower houses at focal points. A row like St. Michael's Terrace, which is now being demolished, may have been irreparable, but the pattern is still valid. The idea of tower houses is already being realized by H. S. Scorer, whose house **16**, is now dramatically islanded above a foreground of desolation. And a building like **17**, even though not quite in Steep Hill and not a house, shows that at least some other Lincoln architects would be capable of understanding the jerky, angular rhythms needed if the new housing on the hill is to have a virile pattern. The architects here were Parker and Roberts.

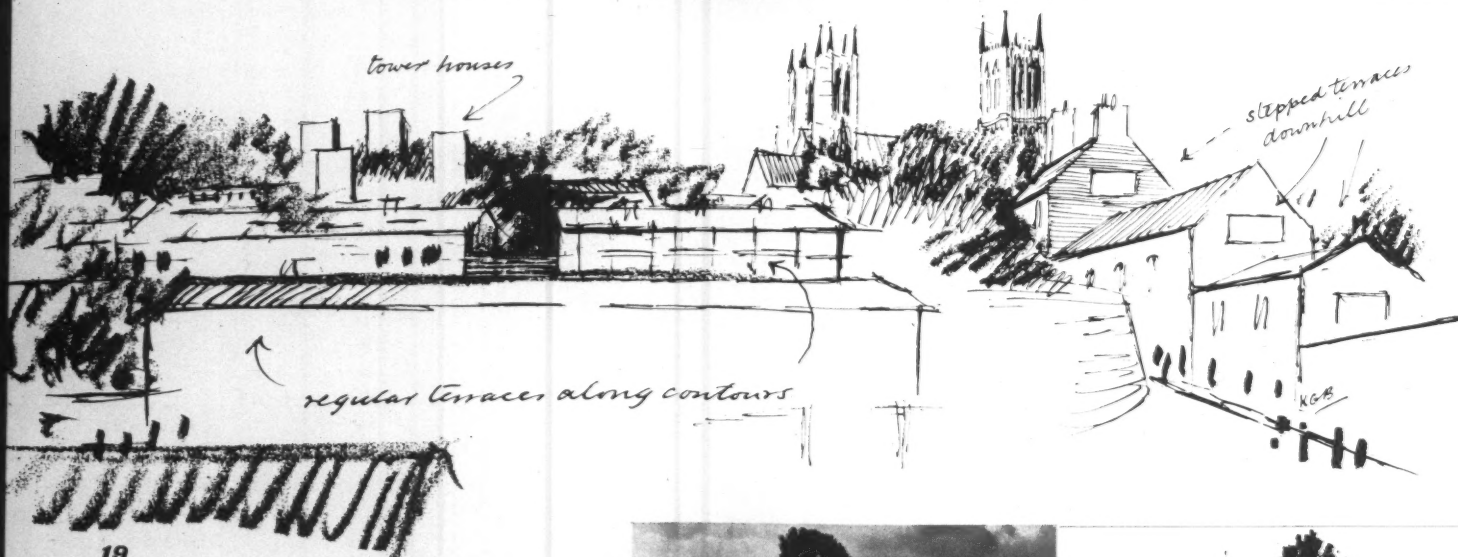
Specific parts of the site will need special treat-



16
17



18

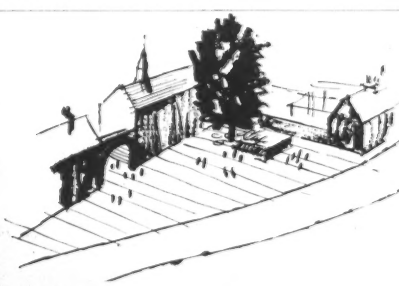


19

ment. The desolation that is the north side of St. Martin's Square, **18**, a view which sums up the whole story of Steep Hill, needs rebuilding as soon as possible, **19**. Even here, replacement would not be a case of second best: the old cottages were mean, and did not make a proper enclosure. The new Steep Hill could easily be a far better place than the old, in terms of townscape as well as sanitation. The triangular space created by demolition at the corner of Strait and Danes Terrace, **20**, is a natural site for a tiny place with a cafe just where the traveller uphill begins to feel the gradient, **21**. And the view up Flaxengate, **22**, which is now blocked, could so easily be prolonged in a set of steps that would cross above Danesgate and go on to come out directly opposite the West Towers of the Cathedral, a route which could become the most exciting of all the ways between Upper and Lower Lincoln were it treated as sympathetically as the more famous steps which run down past Vicar's Court a little farther east, **23**.



20
21



22
23



ss Oriana

owner: P & O/Orient.
 Naval architect: Charles Morris.
 Co-ordinators of
 interior design: Design Research
 Unit.
 partners in charge: Misha Black,
 Milner Gray,
 Kenneth Bayes.
 consulting architect: Brian O'Rorke.
 associated architects: Ward and Austin,
 R. D. Russell and
 Partners.

ss Canberra

owner: P & O/Orient.
 Naval architect: John West.
 Co-ordinators of
 interior design: Sir Hugh Casson,
 Neville Conder
 and Partners in
 Association with
 McInnes, Gardner
 and Partners.
 associate: Timothy Rendle.
 associated architect: John Wright.
 chief assistant: Frederick Hickman.
 cabin interiors: Barbara Oakley.

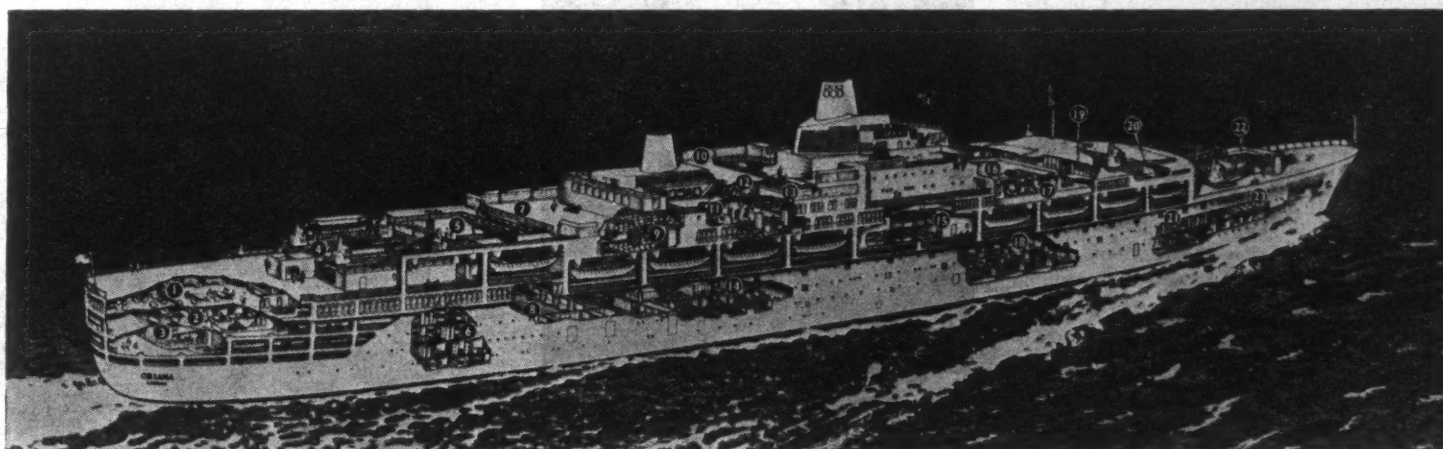
ID

a monthly review of interior design

Oriana and Canberra (whose design is discussed in Stephen Garrett's article on pages 155-158) are ships of closely comparable specification, performance and function, capable of round-the-world service, and the two largest, as well as the two newest, passenger ships built in

Britain since the war. Oriana is 804ft. long overall, with a beam of 97ft. and a gross tonnage of 42,500. Canberra measures just over 818ft. in length, beam 102ft., with a tonnage of 45,000.

Oriana can accommodate 646 First Class Passengers in 337 cabins (some of which



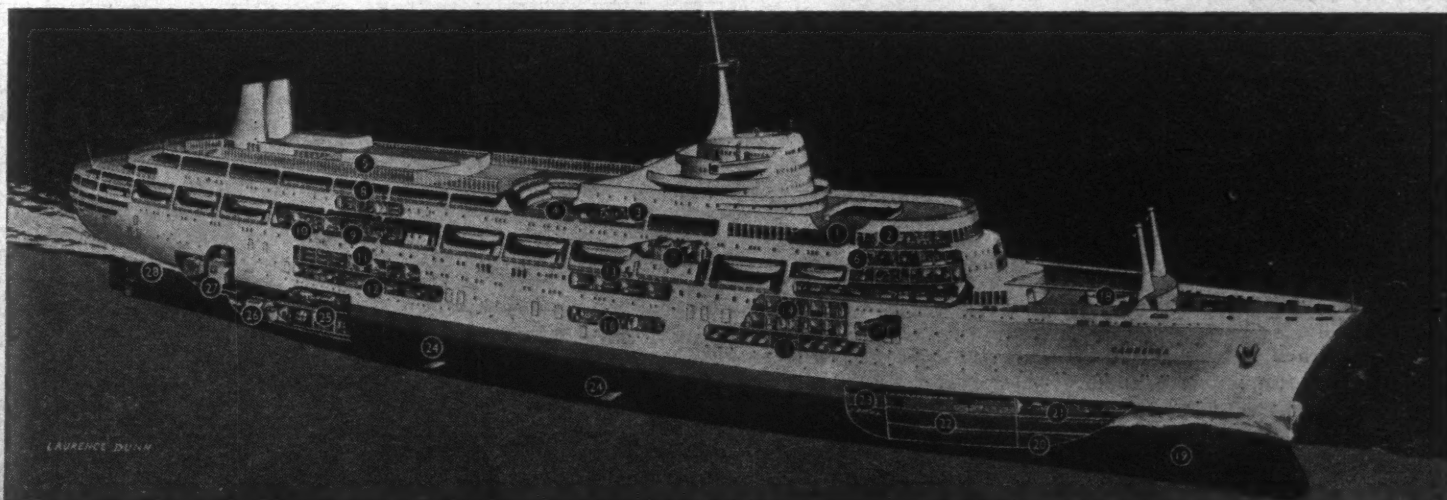
key: 1, tourist class stern gallery bar. 2, tourist class library. 3, tourist class juniors club. 4, tourist class lower swimming pool. 5, tourist class verandah pool. 6, tourist class cabins. 7, tourist class stadium deck. 8, tourist class entrance hall. 9, cinema. 10, first class tennis deck. 11, first class ballroom. 12, first class tavern. 13, first class swimming pool. 14, tourist class restaurant. 15, first class cabins. 16, first class stadium. 17, first class library. 18, first class restaurant. 19, first class stadium room. 20, first class juniors club. 21, crew cabins. 22, crew swimming pool. 23, crew recreation room.

Oriana

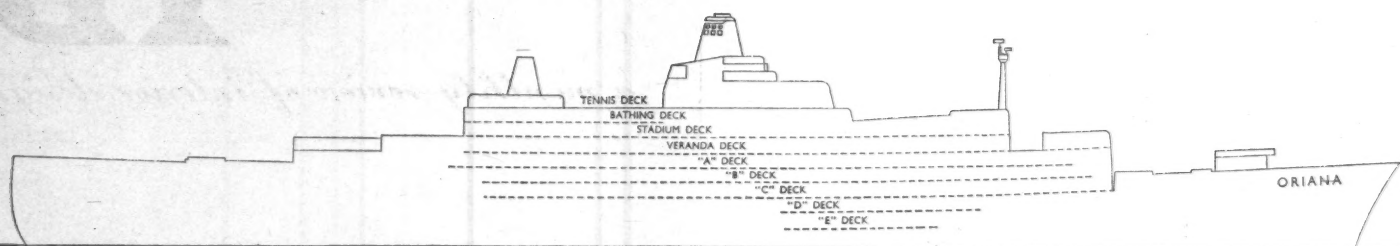
Canberra

key:
 1, games arena. 2, observation lounge. 3, the Bonito Club. 4, first class swimming pool. 5, glazed wind screens. 6, first class court cabins. 7, first class cabins on B deck. 8, tourist class cabins on A deck. 9, tourist class lounge (William Fawcett Room). 10, tourist class reading room. 11, hospital. 12, tourist class dining-room. 13, first class verandah suites. 14, first class court

cabins. 15, first class dining-room (restaurant). 16, first class galley. 17, cargo transporters. 18, light and air hatch over crew swimming pool. 19, opening for transverse propulsion unit. 20, fresh-water tank. 21, No. 1 hold and 'tween deck. 22, No. 2 hold and 'tween deck. 23, No. 3 hold and 'tween deck. 24, stabiliser fins. 25, engine room. 26, propulsion motor. 27, boiler room. 28, open 'A' bracket supporting propeller shaft.



LAURENCE DENN



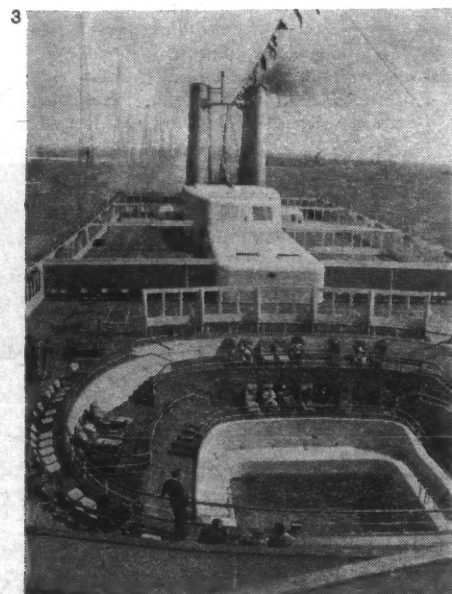
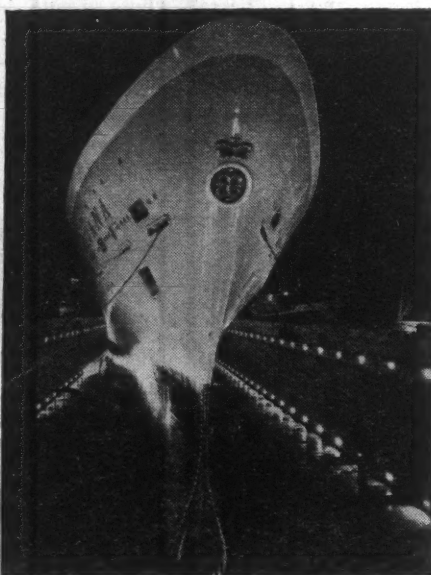
are convertible from Tourist use) and 1,496 Tourist passengers in 513 cabins; there are also 50 children's berths in First Class, and 96 cabins in this class have private bathrooms. On *Canberra* the comparative figures are 548 First Class passengers in 305 cabins (with 100 cots for children) and 1,690 Tourist in 509 cabins (some of which, again, are convertible to First Class). 107 First Class cabins have private baths. Cinemas are common to both classes, that on *Canberra* seating 332, on *Oriana* 318, but the latter has more restaurant accommodation—1,201 places in three restaurants—than *Canberra*, which seats 1,038 in two.

The most radical difference between the two ships stems from the disposition of the propulsive machinery. *Oriana*, in spite of the unusual form of her upper works, conforms broadly to established passenger-ship practice of having her engines amidships, which imposes certain obvious restrictions on the disposition of passenger spaces, in order to clear the smoke and ventilation stacks, etc. *Canberra*, whatever the countervailing disadvantages of putting the engines aft, does have the bulk of her midships space free for passengers. However, economic restrictions (see p. 137) made it impractical to exploit this freedom vertically, and on both ships the interior designers were faced with public spaces of considerable extent, but relatively low headroom.

One further point that needs to be made here, since it is difficult to illustrate it fully in a selection of pictures that cannot give absolute coverage to two very complex ships, is the use made by the interior architects of the work of fine artists, and the contribution of those artists to the finished ships. On *Oriana*, DRU called in John Piper, Humphrey Spender, Mary Martin, Anthea McNish, Edward Middleditch, Ian Mackay and Madeleine Pearson, while *Canberra* had the services of Edward Ardizzone, Geoffrey Clarke, Julian Trevelyan, Edward Bawden, Ruskin Spear, Mary Fedden, John McCarthy, George Mitchell, Arnold Machin, Robert Buhler and Humphrey Spender. Some of their work will appear when the Tourist areas of *Canberra* are illustrated in next month's AR, but one of Mary Martin's reliefs on *Oriana* is seen on p. 191.

1, lengthwise section through *Oriana*, showing First Class accommodation diagrammatically; tourist accommodation starts two decks lower, goes two decks deeper (G deck) and lies aft of First Class.

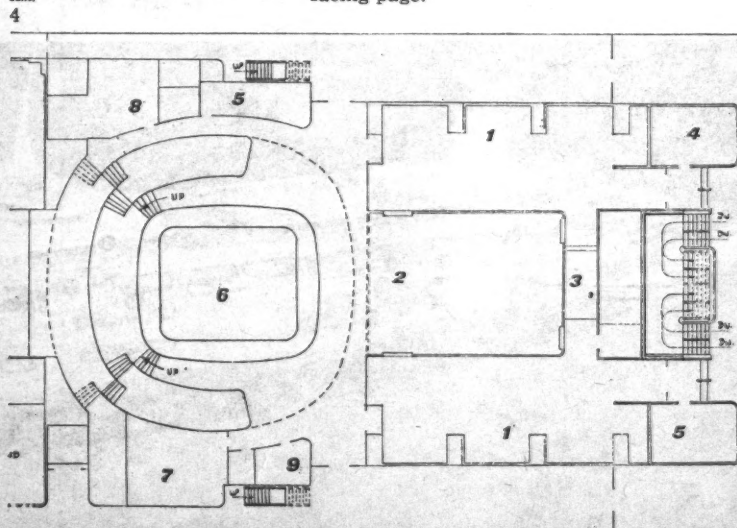
2, the bow of *Oriana* showing fine lines and 'bulb' below water-line.



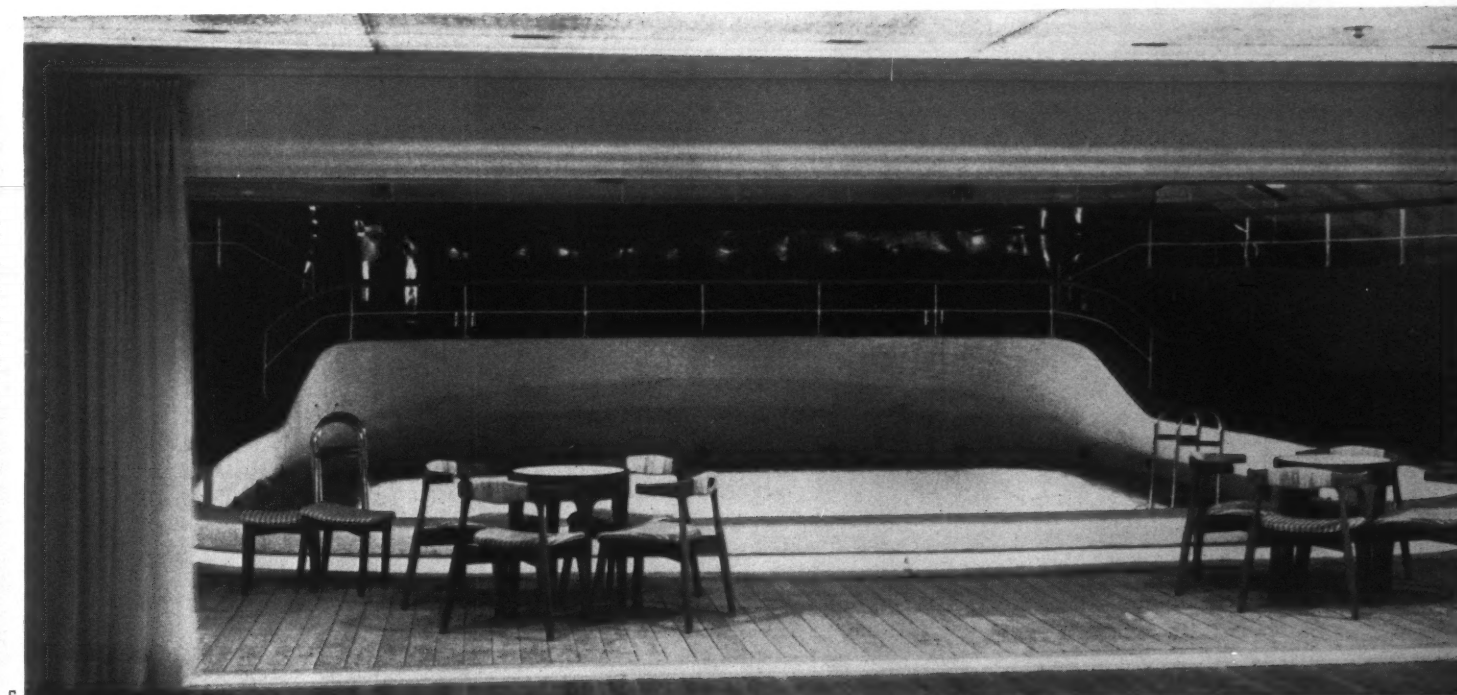
3, general arrangement of First Class swimming pool on *Canberra*, seen from above Bonito Club.

4, plan of pool and Bonito Club area on *Canberra*; see details and general view on facing page.

key: 1, Bonito Club. 2, dance floor. 3, handstand. 4, pantry. 5, bars. 6, swimming pool. 7, women's dressing room. 8, men's dressing room. 9, attendant.



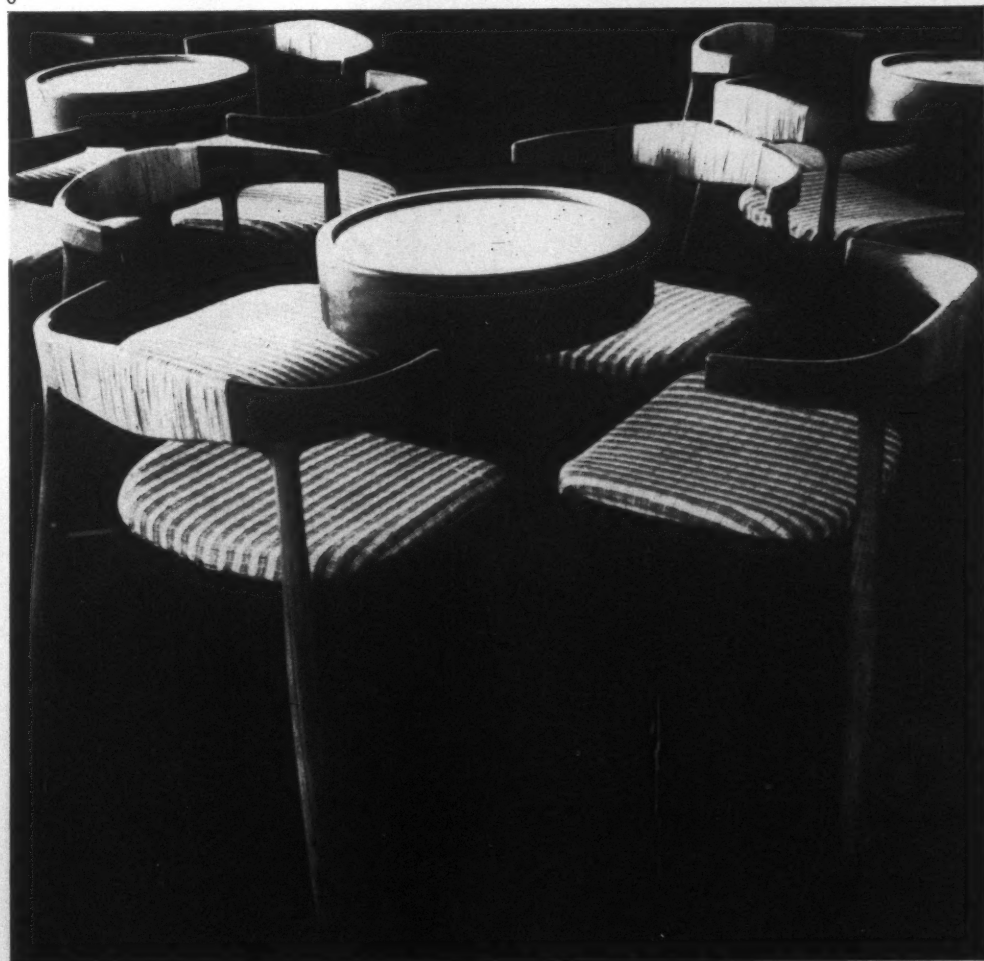
Swimming Pool / Bonito Club



5

5, the first class *Bonito Club* and swimming pool (Sir Hugh Casson and Partners) form as far as possible one space. The pool, faced in white mosaic, is set within the enclosing sun terraces, making an arena protected from the wind. On the line of the curtains a glass wall, hydraulically operated, slides vertically into the floor allowing dancing to continue from the interior dance floor out on to the deck space. 6, the band stand at one end the interior dance floor is flanked on both sides with raised seating areas with stacking chairs and fixed circular tables lit internally to give a soft glow through their decorated glass fibre tops, designed by Humphrey Spender. 7, side alcoves faced in strongly moulded teak give a view over the swimming pool.

6



7



Oriana

Observation Deck



8



9

ID

10



Observation Deck



11

8, first class observation room facing aft—*The Look-out* (Design Research Unit). The bulkheads are in cherrywood veneer and the ceiling in acoustic tiles and boarding painted white. The room contains an exhibition 'History of Oriana' (designed by Ronald Armstrong and Collis Clements, of DRU). The furniture consists of cane chairs on metal frames; the floor is in dark grey linoleum. 9, reclining and folding deck chair with detachable cushion (designed by Ernest Race). 10, detail from *The Look-out*. Compass mounting (designed by DRU) with matt black stove enamelled pedestal and teak handrail.

11, *The Crow's Nest*, first class observation lounge, with full height windows facing forward (designer: John Wright). In the centre is a spiral staircase, with conical perspex light fitting over, leading to another lounge two decks below. The ceiling is close boarded, yacht-fashion, and houses fluorescent and spot lights. The floor is surfaced in teak and close carpeted (carpet design by Audrey Tanner). The area contains various navigational features — compass, miniature buoys, and relief maps with flashing marker buoy positions. *The Crow's Nest* is used for general recreational purposes and includes a bar. 12, 'Bertoia' chairs, chromium plated wire basket construction with yellow and white tweed upholstery and matching stools.

12

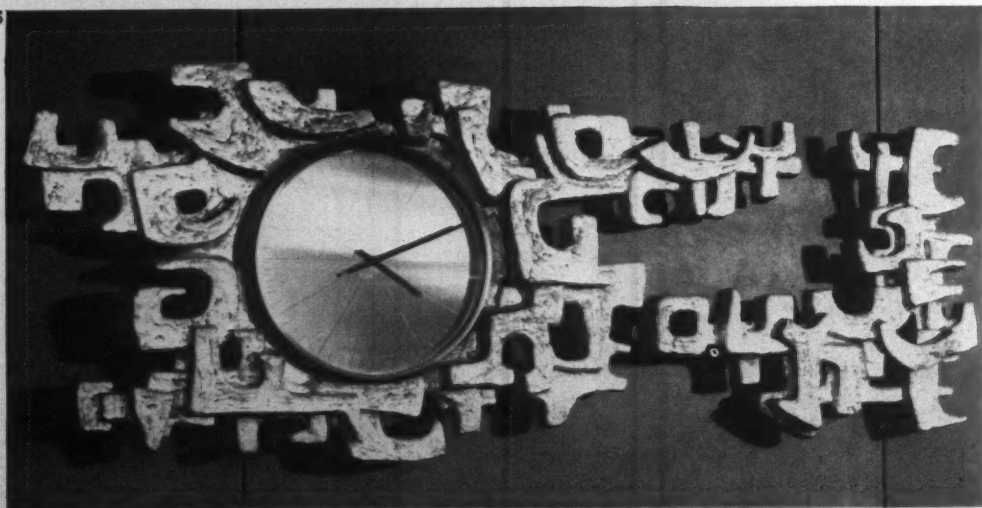


Oriana



14

15



13, *The Princess Room* (designed by Design Research Unit), the main first class lounge (about 80ft. by 70ft.) is arranged to provide general sitting area and a screened off library. This screen is formed to include a mural, by John Piper. The chairs are by Robin Day. The walls are panelled in macassar ebony and the ceiling with its concealed lighting is faced with olive ash with acoustic board in the lighting troughs and intensity of the cold cathode lighting can be varied to suit different uses of the room. 14, the librarian's desk, designed by DRU, is in macassar ebony with silver bronze metalwork and stove enamelled underframe. The writing surface is in hide. The chair, upholstered in black hide, is by Robin Day. 15, clock with decorative gold leaf surround designed by John McGill; clock face by Christopher Timings, of DRU. The clock is set against moss green leather panelling which is used in some sections of the room.



13

The Meridian Room (designed by Sir Hugh Casson and Partners), first class lounge, provides general lounge area, card playing tables, access to a spiral stair leading to *The Crow's Nest* observation lounge, and has a bar at one end. 16, a card table with reversible top giving hide or baize top, with chairs upholstered in black hide. 17, writing desk and chairs in the Writing Room. 18, preliminary model, prepared by Sir Hugh Casson's office, showing the arrangement of this room. Writing Room and Library are at the bottom, main lounge area in the centre leading to the spiral stairs, and bar beyond. The suggestion of open planning an area such as this, and the stress on curving forms, is one of the main contributions made by the interior architects.

Canberra

First Class Lounges / Libraries



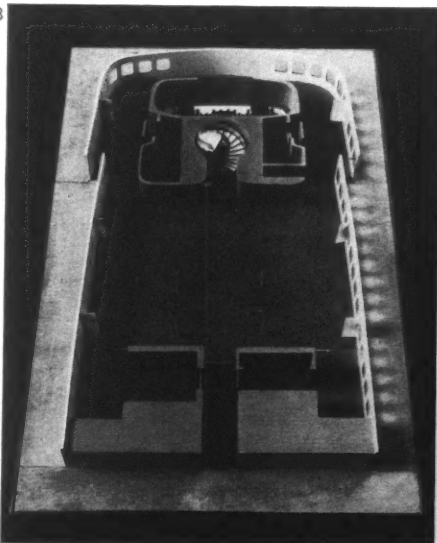
16

17

ID



18



Dining Rooms



19

20

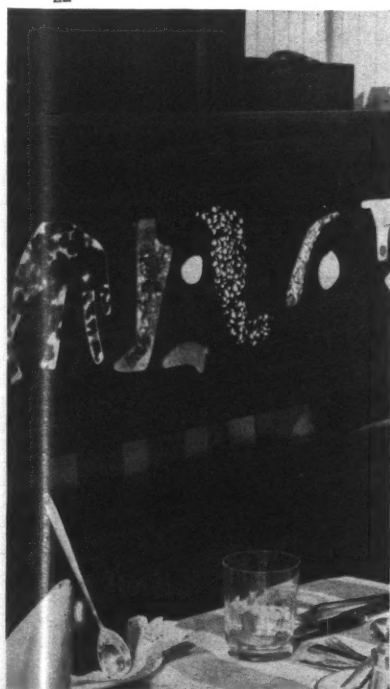




21

ID

22



19, first class restaurant (designed by R. D. Russell and Partners), seating 360. The room is divided into a large central area with smaller bays on either side. The panelling is in figured Brazilian rosewood and dark green leather cloth; curtains in bright pink, scarlet and dark orange Siamese silk. The lighting can be adjusted to give strong light during the day and more subdued light by night. The chairs (designed by Ian Hodgson) are in rosewood with scarlet upholstery. Specially designed stainless steel cutlery by Robert Welch, and Wedgwood china by Professor Gooden. 20, tourist restaurant (designed by Ward and Austin). The floor is of vinyl tiles; ceilings in white and beige leathercloth and walls panelled in Indian Silver Greywood and beige leathercloth.

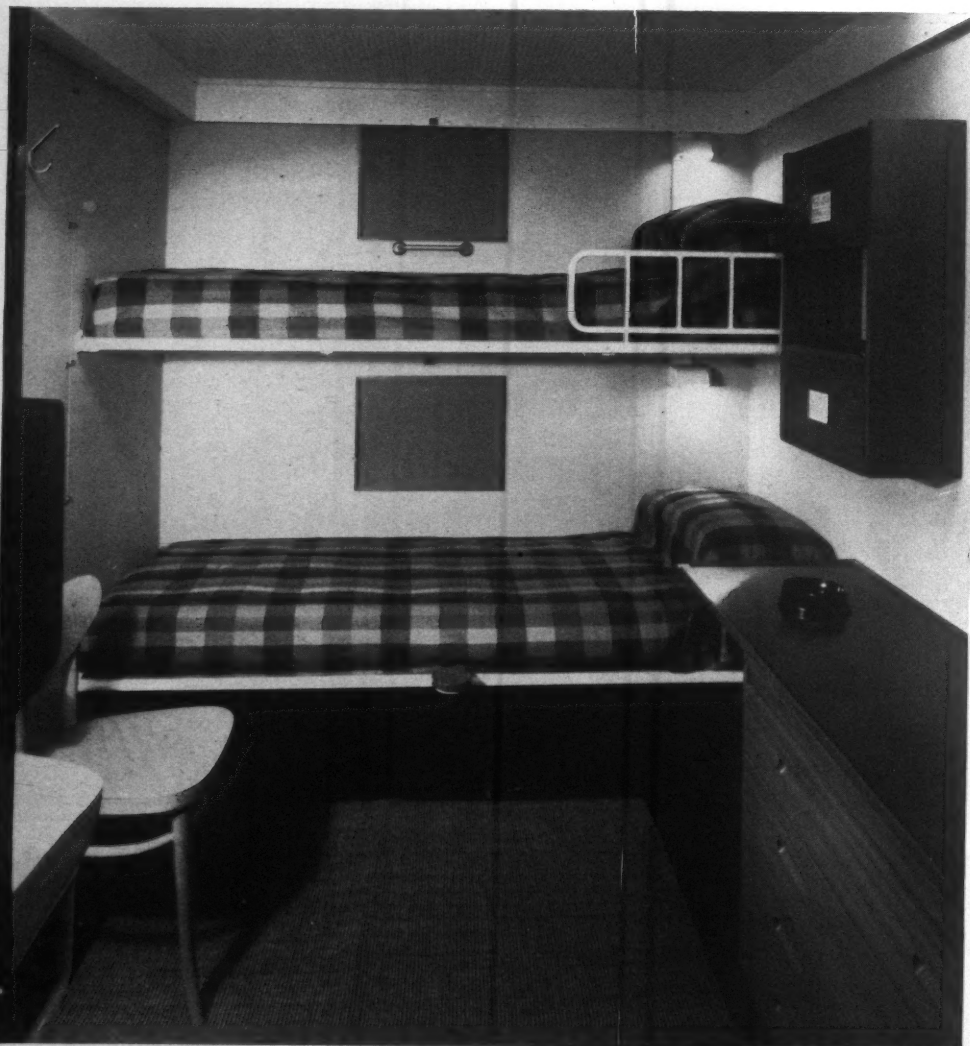
21, first class restaurant (designed by Sir Hugh Casson and Partners). The room extends the full 100ft. width of the ship, but has no portholes. Every effort has been made to reduce an oppressive feeling to the room due to its low ceiling by variety in lighting, a sunken central section, raised central ceiling and high backed seating to side alcoves. 22, detail of inlay to Indian laurel balustrade surrounding central area by William Mitchell. 23, dining chair.



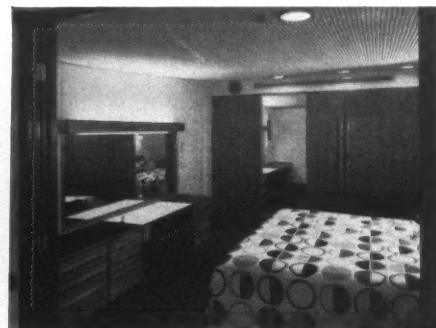
23

Oriana

Cabins / Children's room



24



25

24, tourist class two-berth cabin (designed by R. D. Russell and Partners and Orient Line Management). Charcoal grey floor, grey and white striped PVC to walls. 25, one of the 'verandah' suites, also by R. D. Russell and Partners. Each suite has its own sitting area with large bulkhead windows. 26, tourist class *Junior Club* (designed by Design Research Unit). The climbing frame was designed by June Lyon and the plastic mural by Robert Perritt. 27, detail of climbing frame in first class *Junior Club*, also by DRU. The frame is made of teak (tourist frame is mahogany, a subtle class distinction) with aluminium supports.



26



27

Circulation/Signposting

28

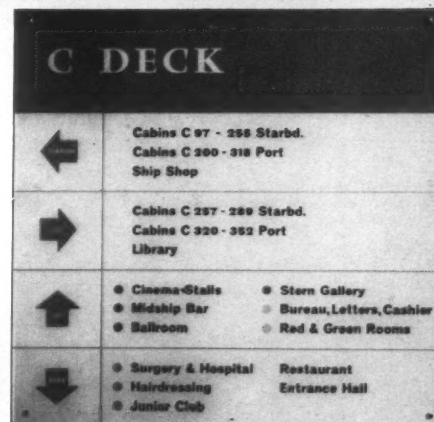
28, first class main stairway (designed by Design Research Unit). The low relief is by Mary Martin. Panelling is in paldao and the ceiling surfaced in white PVC cloth. The landing and treads are surfaced in dark and light grey linoleum. 29, ash bins in two sizes designed for cabins and public rooms, in spun aluminium, anodized and stove-enamelled sea-green with white lettering. Designed by Ronald Armstrong, of DRU. 30, directional signposting on interior decks, designed by Christopher Timings, of DRU.

31, directional signposting, designed by David Collins for Sir Hugh Casson and Partners.

Canberra

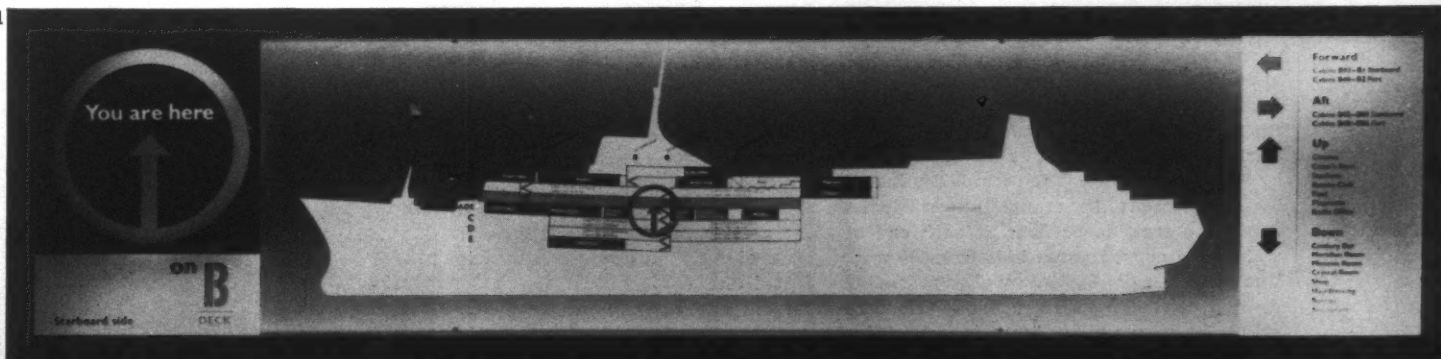


29



30

31



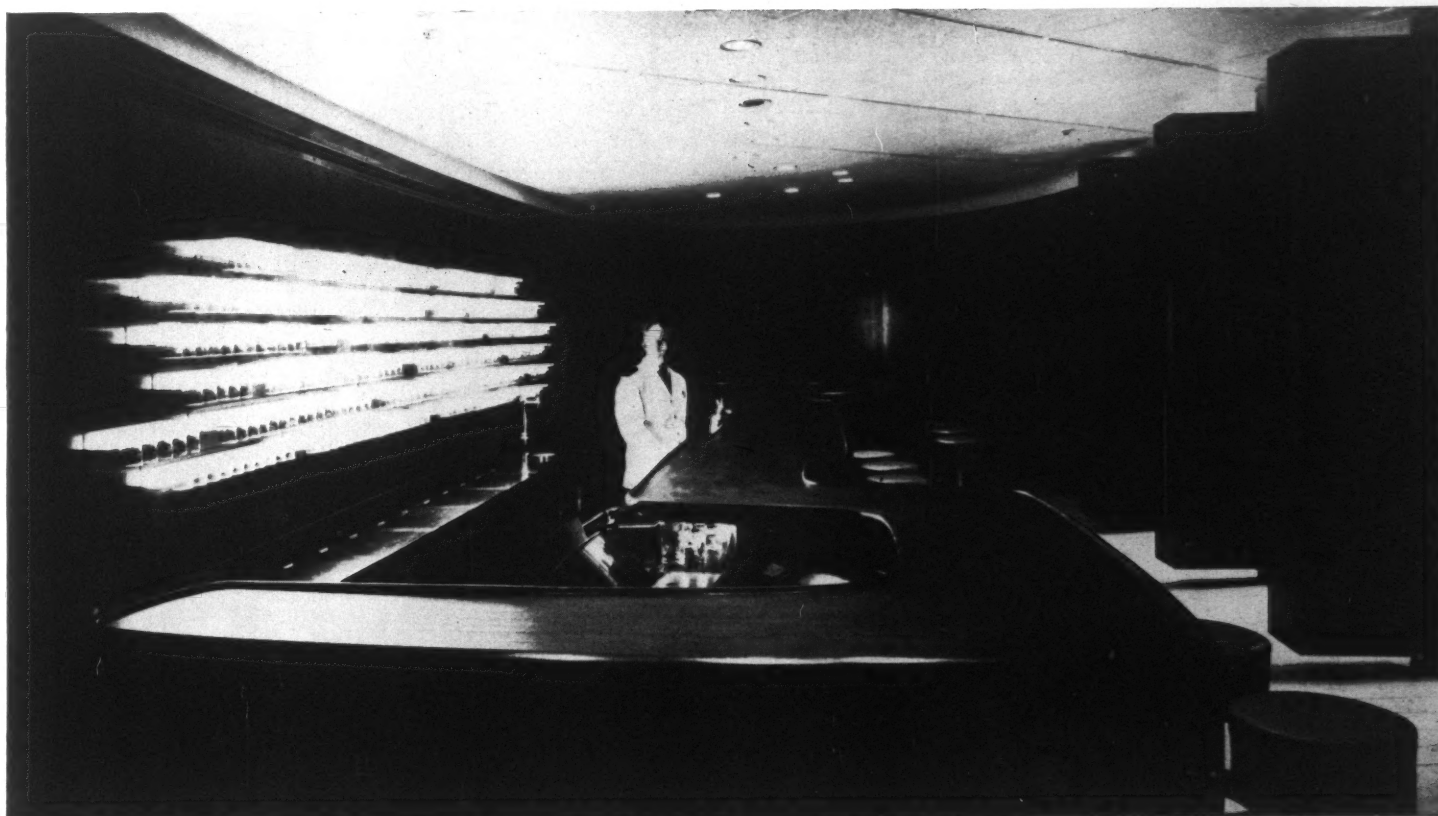
32



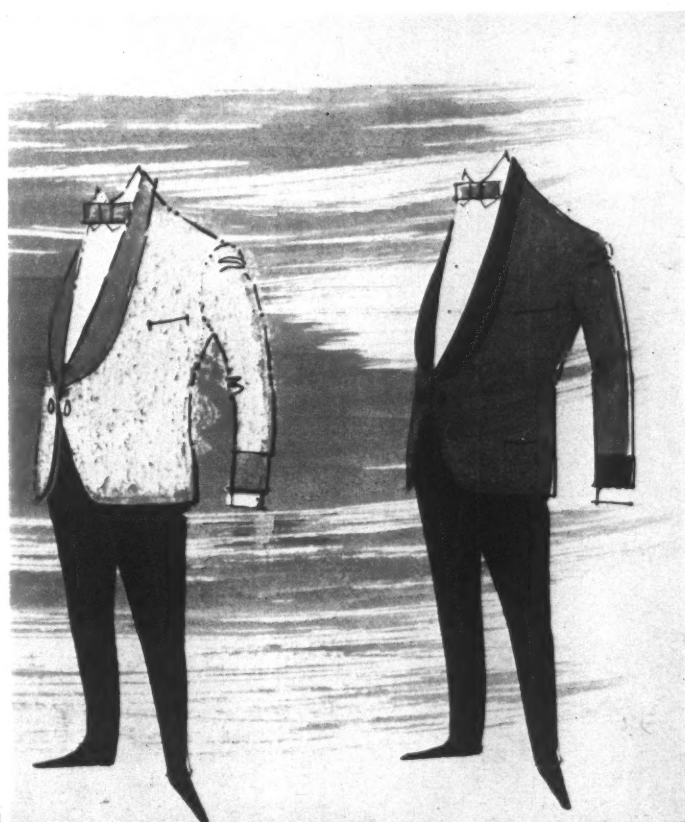
33



32, a passage to the first class *Plough Tavern* from the open deck (designed by Design Research Unit). The glass was recovered from the now demolished *Plough* at Notting Hill Gate and the door panel was designed by Alan Ball, of DRU. The floor of the passage is in white mosaic and the woodwork is cedar. 33, tourist ballroom (designed by Ward and Austin). The room is dominated by five secretly lit orange saucer domes above the teak dance floor at each end of which is a curved green hide covered wall. The dance area is flanked by alcoves leading directly to the open deck and fitted with settees in orange hide. Wall panels by Olive Sullivan. Chairs upholstered in green hide.



35



34

34, preliminary designs for bandmen's uniforms by Sir Hugh Casson and Partners. 35, first class bar, screened off from the Meridian Room Lounge. Designed as a sit-up bar, a new feature for P. & O. liners, the counter is strongly sculptured and formed in laminates of various dark coloured hardwoods.

ID

In next month's issue the cabins and Tourist class public areas of Canberra will be the subject of ID.

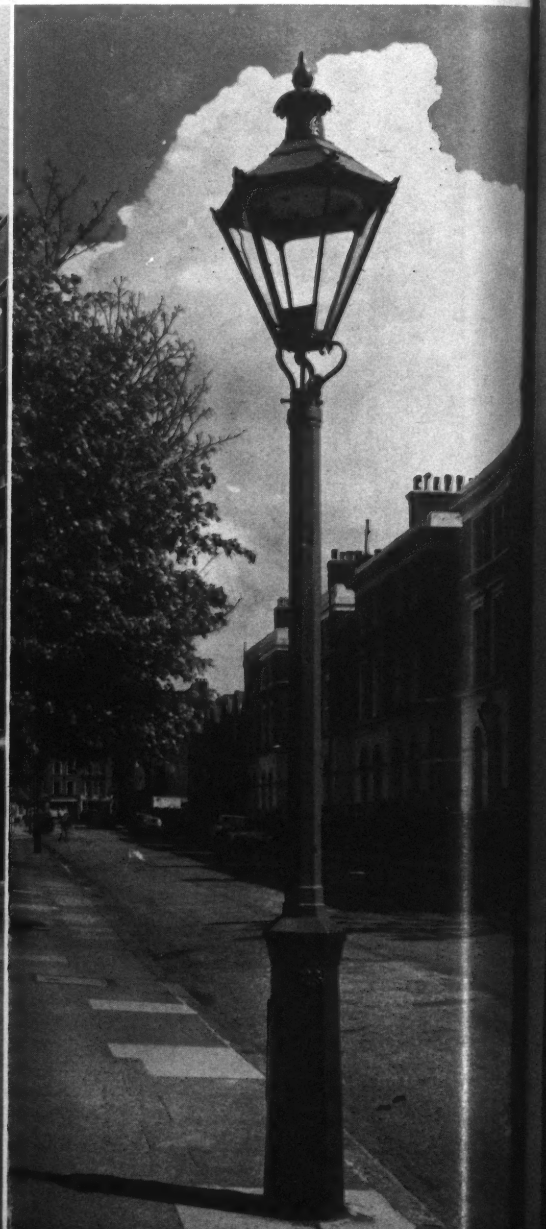
Victorian cast-iron lamp-posts can be successfully converted from gas to electricity. This would be done more often (as the article opposite argues) in the interest of the scale and character of urban streets if it was not for the apathy and false notions of economy on the part of local authorities and the tidy mental habits of local surveyors, to whom a clean sweep and a standard new design mean more than visual appeal and the genius loci. **1**, Castle Street, Farnham, where the old lamp-posts have been preserved and converted to electricity and where the substitution of taller modern ones would have been disastrous. **2**, a close-up of one of the Farnham lamp-posts. **3**, a particularly robust example similarly converted in Hallam Street, London (Marylebone Borough Council). **4**, an example in St. James's Gardens, Holland Park (Kensington Borough Council), showing that conversion is still possible if fluorescent lighting is desired. The lantern here contains a fluorescent ring instead of a tungsten lamp.



2

3

4



It is difficult not to think that the Victorian ironfounders who cast the hundreds of thousands of gas lamps that lit most British towns till the 1930's smile to themselves in whatever place Victorian ironfounders go to. What they must have regarded as routine orders are now fussed over, petted, fought for, flogged by insensitive councils or their contractors, snapped up to adorn the gates of industrialists' country mansions or to beacon defiantly the porches and backyards of more modest men. Their lamps have achieved status symbol rank, like vintage cars and deerstalkers, signs of style in a styleless age, snooks cocked at mass-production, dead levelling, bureaucracy, etc. But before they become collectors' pieces, overprized yet at the same time underrated, let us not forget that many of them, sensibly and sensitively treated, can still have years of useful and decorative life before them as electric lamps in the right sort of street.

I emphasize 'the right sort of street' because the mere mention of preservation, conversion or aesthetics in connection with street lamps is apt to bring the lighting engineers down on one with all the familiar arguments about road casualties and detection of crime, and the less enlightened borough engineers and councillors with all the familiar arguments about 'commercial cheerfulness' and 'equal standards throughout the borough.' I completely agree with them that it is just as important not to be preservationist about all cast-iron gas lamps (one can easily lose all sense of proportion over a restored 1927 Sugg) as it is not to howl every time an early Victorian building comes down. Life has to go on, the streets have to be lit, and good (or bad) modern streets look better with good (but not bad) modern street lighting. But neither is it purely fuddyduddy to declare that old streets hardly ever look well with even good modern lamps and that dark brick or light painted Georgian and Victorian terraces and villas demand where possible the retention of honest Victorian lamps which alone seem to achieve the requisite blend of solidity, just scale and gently ornate character. Anyone who doubts this should ramble round the side streets of Chelsea or Holborn now and a good deal of Kensington* in the near future. Then let him take a bus up to Hallam Street in Marylebone, where some splendid Victorian lamps have recently been converted to electricity, or a train to Farnham in Surrey, where Castle Street, an

eighteenth- and early nineteenth century street of great beauty, is now lighted by converted Victorian lamps and standards.

As councils, with such enlightened exceptions as Farnham UDC (who actually sought advice from two local architects), seem automatically averse from converting gas lamps to electricity unless the ratepayers practically wring their necks, let us soberly examine the main points involved in such conversion, so that intelligent ratepayers can put the arguments sensibly and intelligent councillors follow them sympathetically.

First, let us make it quite clear that we are not advocating conversion for A-class streets (that is main traffic routes), seeing that the high and heavy traffic, as well as the miscellaneous architecture, almost invariably puts short, post-top lamps out of court. It is to B-class streets† whose style and scale require sensitive treatment, that we confine these remarks.

Practicability of repair and conversion

Naturally many of the Victorian lamps have become corroded or bashed about in the course of time. But many haven't. The ironfounders may smile again at the sheer foursquare sturdiness of their handiwork which makes those spoilt darlings of the modern scene, sheet steel, aluminium and concrete, seem insubstantial in comparison. It is therefore up to any council when it conducts the surveys for a new lighting scheme conscientiously to investigate the existing lamps and see how many can be salvaged to replace or supplement, if necessary, the lamps in B-class streets of architectural merit. They owe this to their ratepayers who will probably have chosen the houses on which they pay their rates because they like the character and charm of the street.

Where there is a will there is usually a way. For example, Farnham UDC made experiments and found it was possible to cut doors in the bases of the existing standards to instal the switchgear. As for the lanterns, some enterprising manufacturers provide what are almost 'do-it-yourself' kits for converting them from gas to electricity. Siemens Ediswan, for example, have evolved a Gas Conversion Unit, 5, made for use with filament, mercury vapour and sodium lamps, and embodying the control gear, at a cost of about £7. This demolishes the argument that conversion is a matter of unfathomable difficulty and vast outlay. One town in Scotland has a project for converting 2,000 existing gas lamps to electricity by means of these units. Local condi-

tions must naturally vary enormously, but it is safe to say that, provided there are enough lamps in sound condition for the required number of streets, conversion is perfectly feasible.

Height

Most Victorian lamps have a mounting height of 10 or 12 ft., which is exactly right to the scale of the two- or even three-storey terrace streets which we have principally in mind. Councils tend to be hypnotized by the recommendation of a 15-ft. mounting height in the Code of Practice and sometimes treat it, to their shame, as a regulation. The Code actually allows a tolerance of 13 to 16 ft. where 15 ft. is 'not practicable.'

CONVERTING GAS LAMPS

The 15-ft. height is of course the sort of official prescription that is very useful for a council to lean on 'as a matter of policy' if they have no feeling for their attractive side streets or the borough engineer can't be bothered about two sets of spares or two routines of maintenance.

The reason for recommending 15 ft. is that it allows better illumination than 10 or 12 ft. for traffic, and that such outsize vehicles as fire engines, pantech-nicons and units of travelling circuses when they hit a lamp simply knock it through the window of the nearest house without themselves getting damaged by the lantern. In framing the recommendation, the official mind, as usual on the side of the transient motorist against the permanent resident, appears to have disregarded the fact a 15-ft. mounting height is almost exquisitely contrived to shine full into first-storey bedroom windows as well as being villainously out of scale with a coherently designed side street.

The traffic problem that produced this 15-ft. gospel is obviously closely connected with the cognate one of brightness and is more fully discussed under the next heading. Suffice it to say that not all councils have been cowed from introducing new housing schemes with 13-ft. street lamps; and that where old 12-ft. lamps have been converted and resited (and perhaps tactfully given a leg up to 13 ft. with a new base), no wrath from heaven has descended on them, so far as one knows, nor has the Ministry of Housing and Local Government refused them a loan. In other words, a council that is prepared to take trouble for its ratepayers is not necessarily sticking its neck out.

Brightness

Along with the lack of silence, universal brightness is becoming one of the major menaces of civilized modern life. Naturally there is a degree of dimness which can't be tolerated in any side street

DEREK BARTON

* The controversy over the design of the new street lamps in Kensington has raged as fiercely as that in Chelsea and far longer. One is glad to record that Kensington Borough Council has allowed the old lamps to be converted in 26 streets 'of architectural merit' and sorry that it should have made itself ridiculous by having to admit that this selection from the plethora of fine streets and squares in Kensington is purely arbitrary. Pelham Crescent, for example, is apparently slated for the uninspired new concrete standards. So is the delightful enclave of Victorian streets (most of them with no through traffic) west of Gloucester Road and including St. Albans Grove, Victoria Grove and Eldon Road, where any change seems utterly unnecessary.

† There is surely a case for subdividing B-class streets as distinguished in the 1956 BSI Code of Practice (1004) into B and C streets. B, side streets of ordinary character. C, side streets with a preponderance of good architecture or with special character. If this were done councils might be more disposed to give their show streets special treatment instead of lumping all side streets together 'as a matter of policy.'

however romantic if cars and drunks are to use them with safety. At the same time, why should a quiet cul-de-sac which is barred to traffic be lighted with the same intensity as an avenue of stockbroker villas with two garages

been known to increase the illumination considerably.

Mention of house fronts brings us back to first-storey windows. The appearance of an unscreened 80-watt fluorescent lantern on a 15-ft. column† directly outside

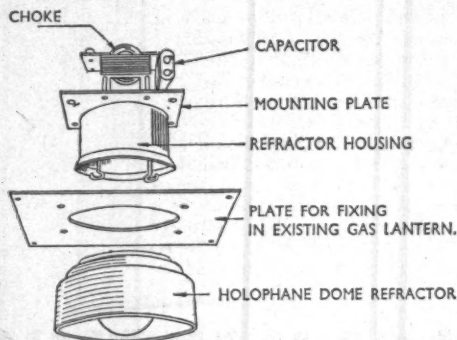
a particularly intractable problem. Even a well-designed one is out of scale on a 15-ft. column: it needs an 18-ft. column to do it justice. A badly designed 2-ft. lantern on a 15-ft. column merely looks grotesque.

Cost

It is of course cost that councils play as their trump card in refusing ratepayers' pleas for the conversion of existing lamps. As the comparative costs will vary with every scheme in every different locality, the only sound principle to lay down is not to let the council get away with that one until the costs of conversion have been authentically stated. If councillors state that the cost of converting a lamp is as much as the cost of a new one (and councillors have been known to do so) they are probably being disingenuous, unless they are proposing to put up the cheapest possible concrete column with the most miserable lantern they can find in the catalogues, in which case they are merely being cheeseparing. At the same time, it is as well to be wary of the contractors who promise to do it for a fiver. The Siemens-Ediswan Conversion Unit mentioned above costs about £7. Reconditioning costs vary widely according to local circumstances and any conditions the supply authority may enforce, e.g. if they insist on the provision of an underground fused service box for gas pillars with no base compartment. It is reasonable to say however that the cost of a reconditioned lamp complete is competitive with the cheapest new lamps and well below the expensive ones, which may be over £100. This is the hub of the matter. Also electricity is cheaper than gas and involves fewer lamp renewals. Against this, the council may claim that to get adequate lighting with converted lamps the number of lamps in the street will have to be increased; and that the maintenance costs with good modern lamps will be less—a good deal less if they are concrete and don't need painting.

A council may fairly claim that it must think carefully about the comparative capital expenditures and long-term maintenance costs if it is being asked to embark on conversion of existing street lamps on at all an extensive scale. Its ratepayers may fairly claim to have the aesthetics of their borough considered if they are asking to have the particular character of selected streets preserved. Any council that refuses out of hand to treat the possibility of such conversion seriously is philistine or dictatorial or self-satisfied and should be attacked with the sort of arguments I have outlined and with the most exact figures that architects and engineers among its ratepayers can provide.

5, The Siemens-Ediswan gas conversion unit showing the simplicity of the process of converting gas-lamps to electricity if the will to do so is there.



simply because the council is bemused by what the borough engineers on the Metropolitan Joint Standing Committee in their draft practice notes (standardization of street lighting) call 'an air of brightness and commercial well-being'? And though one must accept the general statistic that modernized lighting, i.e. fluorescent, sodium, tungsten or colour-corrected mercury, may well cut the night accident rate by 20 per cent at 'sites,' i.e. crossroads and corners, where they have replaced gas or electric filament,* why should one apply this criterion rigidly to all B streets? Doesn't it simply mean that cars ought not to be using these streets at night for short cuts, and won't the increasing illumination invite more cars to use them and to drive faster down them? In other words, the traffic is in the wrong place, and it is the borough engineer's road plan, not his street lighting scheme, that needs bringing up to date. A judicious planning of one-way streets and no through streets would obviate the need for trying to make all streets as bright as day.

One would be more impressed by the advocacy of brighter side streets if in fact some of the new illumination really did make it easier for the motorist. But if you drive, say, from South Kensington Station to the King's Road through Pelham Crescent, are the converted 12-ft. gas lamps still standing in the Crescent at the time of writing less easy to drive by than the 15-ft. fluorescent lamps recently installed in the Chelsea side streets, which throw a relentless light on the house fronts and leave pools of darkness in the roadway? And if the orthodox placing of the electric filament bulb is thought not to give enough light, resetting it in the dome of the lantern under a 'ceiling' of white titanium or aluminium paint has

one's bedroom can be fairly hellish to anyone who merely wants to do what the doctors tell you and sleep with their window open. A council worth its salt will of course provide in its scheme for screening inconvenient lamps. The other sort bleakly bids its ratepayers buy thicker curtains (at their own expense). But why not make a real effort to convert the existing lamps if feasible rather than derange people's slumbers and wreck the character of the street?

Fortunately there are some signs that the current rage for fluorescent lighting is past its peak. Further technical advance in this medium appears unlikely. In the last three years no company in this country has produced a new fluorescent lantern for B street lighting into his catalogue, whereas most of them have introduced lanterns for colour-corrected mercury, which is cheaper than fluorescent and more gracious. This information will take some time to penetrate into the backwoods and backwaters, but at least private citizens need no longer be overawed by the official argument that warm white fluorescent (of all misnomers) must be best because it is cheapest.

Actually the capital costs of fluorescent lanterns are very high—two or three times those of other light sources. And the 2-ft. fluorescent tube as used in B street lighting is inefficient electrically and has the disadvantage that two tubes have to be combined in one fitting.‡ The fact that they have to be 2-ft. tubes makes the design of a post-top lantern for a B street

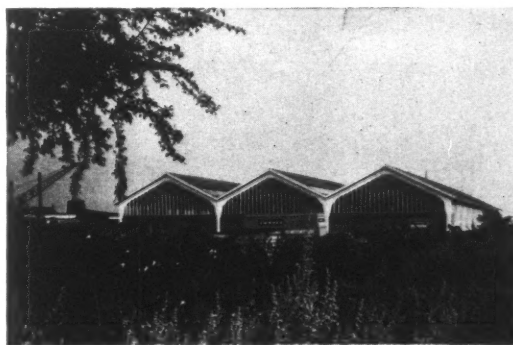
† The police claim that these very bright lights deter burglars or make them easier to spot. Is this borne out by statistics? Isn't a house every brick, pipe, foothold and window of which is carefully illuminated as inviting to break into as a dim one?

‡ A development which it is hoped may help to eliminate the necessity for ungainly fluorescent lanterns is the 80-watt fluorescent ring which can be fitted into an existing gas lantern. These rings are in fact slated for the 26 Kensington streets 'of architectural merit' referred to above. But some fluorescent rings have been disappointing in performance, and the replacement cost is high.

* Sir William Glenville's paper on 'Light and Road Safety.'

current architecture

1, distant view
of the rear of
the production
area. 2,
entrance to the
office block.



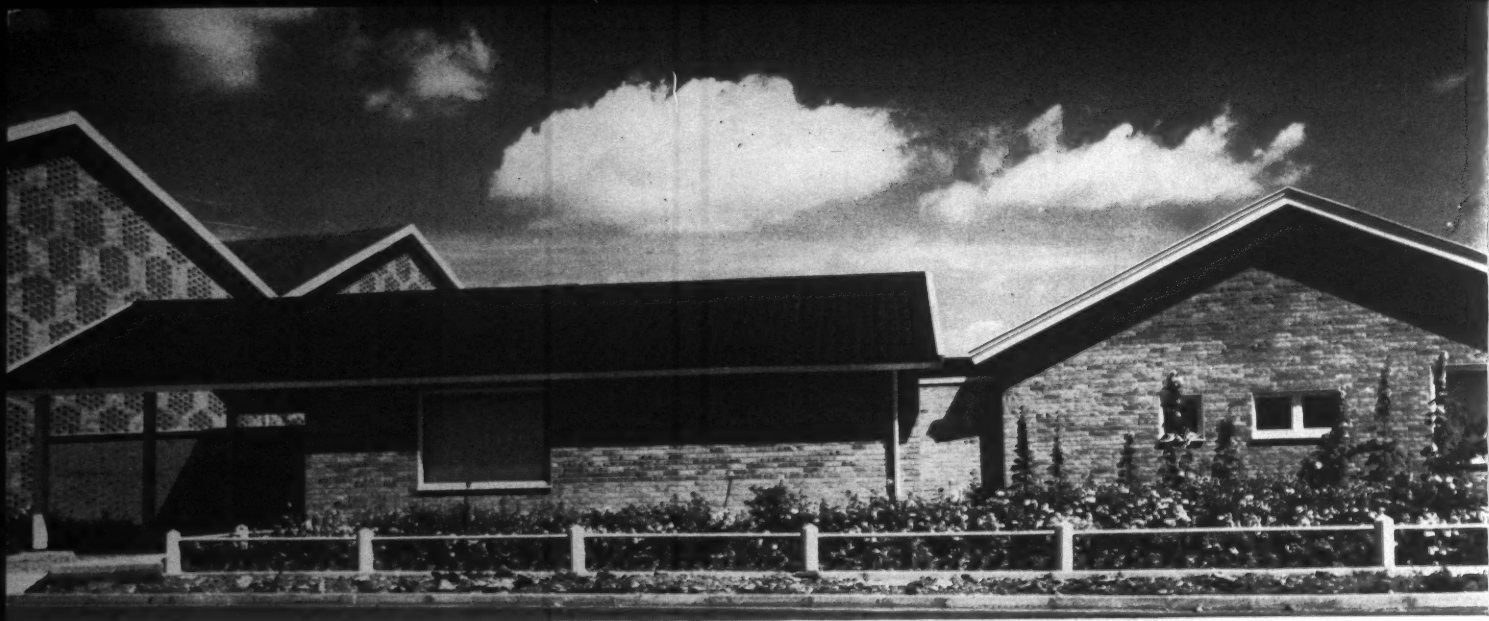
FACTORY, UXBRIDGE

ARCHITECTS, TAYLER AND GREEN

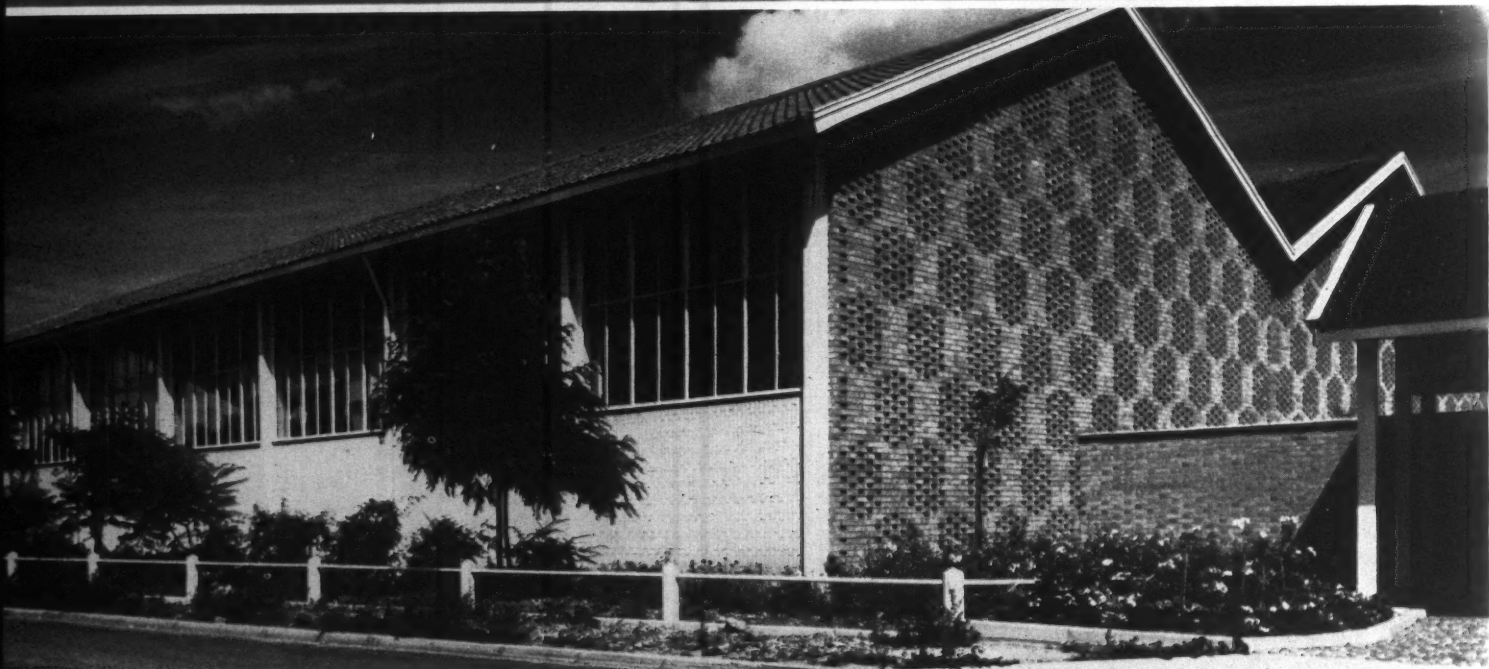
This is a conscious attempt to design something that would be an improvement on the common type of factory building, which uses sheet materials for walls and roofs. These, however carefully detailed, tend to weather badly and add to the slummy atmosphere of most industrial areas.

The architects of this factory, which is on an unattractive site, have not only used more solid and sympathetic materials (which unexpectedly worked out cheaper than sheet materials) but have tried to improve on the usual atmosphere in the planning: the works





3



4



5

Factory, Uxbridge

Facing page: 3, the managing director's suite, with the production area on the left and the office block on the right; 4, close-up of the production area; 5, another view of the managing director's suite. 6 (below), the canteen.

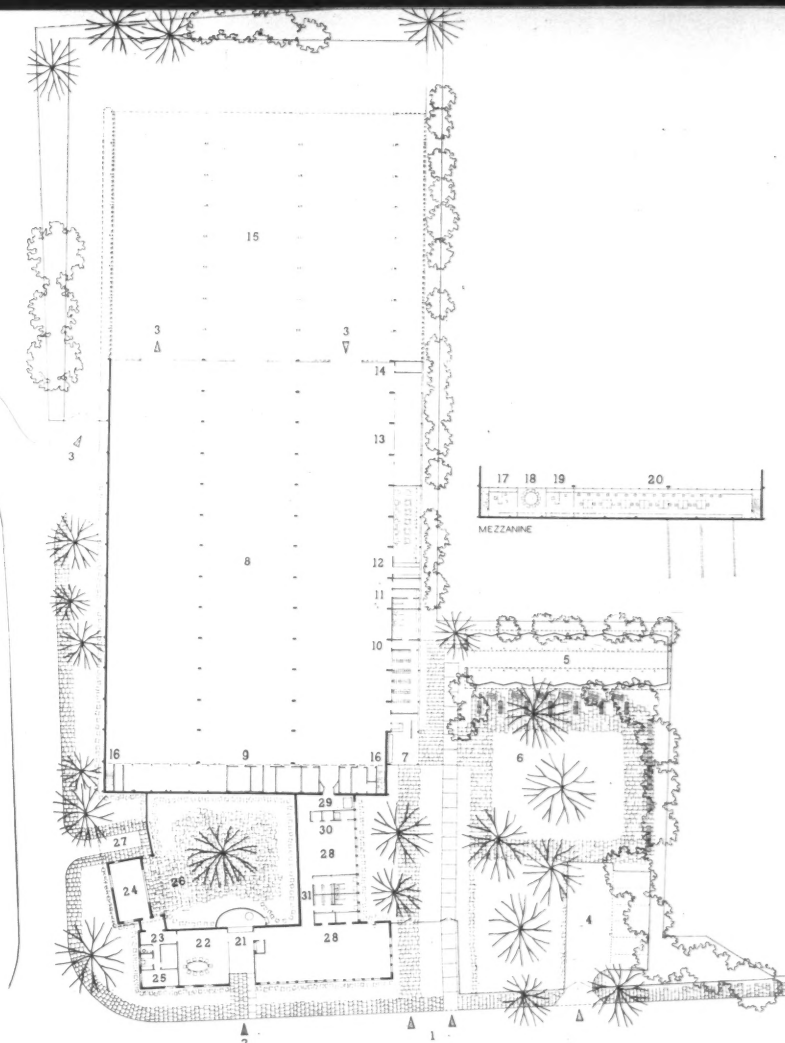


entrance is at the front, alongside the office entrance, and the production area, instead of being hard up against the office block, is separated from it by a garden courtyard. The managing director's suite opens on to this garden. An office at mezzanine level with a glazed wall runs the full width of the production area. It is for the use of the team most closely connected with production and maintains contact between the office and the manual workers.

The whole factory is on one storey (except for the mezzanine office already mentioned). The production area has a series of portal frames in reinforced concrete with panel walls of brick and brick end walls which have a pattern made with groups of projecting headers. The other buildings are of load-bearing brick. All roofs are tiled.

key

- | | | | |
|---------------------------------|-----------------------------------|--|-----------------------------|
| 1, factory entrance. | 8, production area and stores. | 16, stairs to mezzanine. | 24, office. |
| 2, office entrance. | 9, works admin. offices. | 17, managing director. | 25, secretary. |
| 3, goods entrance. | 10, male cloaks and lavatories. | 18, conference room. | 26, garden. |
| 4, visitors parking. | 11, female cloaks and lavatories. | 19, works manager. | 27, car port. |
| 5, cycle sheds. | 12, canteen and servery. | 20, general office. | 28, general office |
| 6, staff garden. | 13, prototype shop. | 21, entrance hall. | 29, office to factory link. |
| 7, staff entrance and clocking. | 14, cleaner. | 22, conference room. | 30, telephonist. |
| | 15, future factory extension. | 23, managing director's private suite. | 31, cloaks and lavatories |



7, canopy leading to the main entrance.



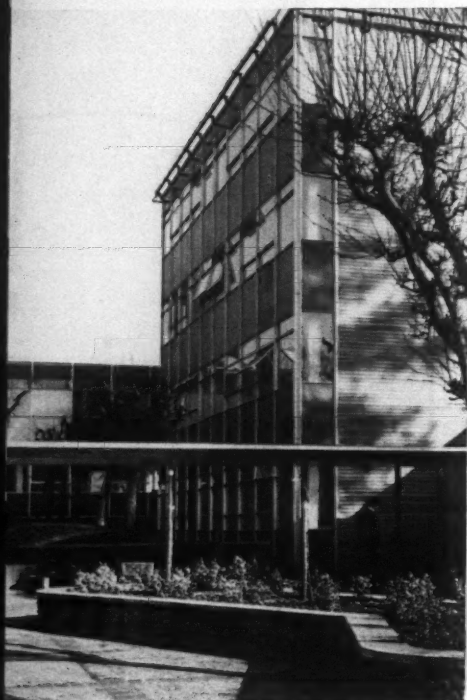
COLLEGE OF FURTHER EDUCATION, ST. ALBANS

ARCHITECT, G.C. FARDELL (Hertfordshire County Architect)

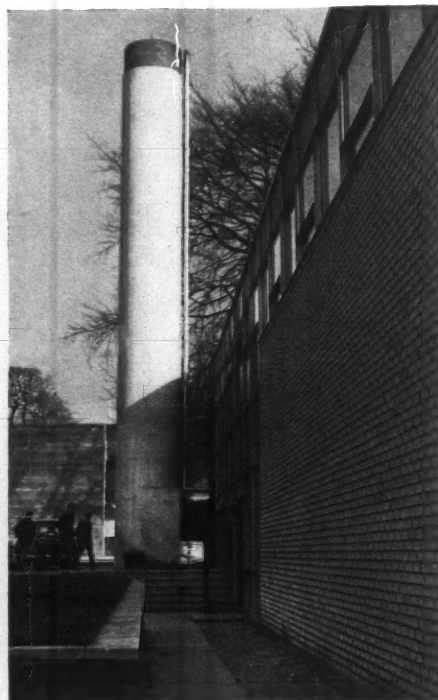
This group of college buildings, which shares a site with the Hertfordshire College of Building, is the first of a programme of four large colleges which are being designed and constructed on a 32 in. modular planning grid. The design and structural techniques have been under development since 1957 and have already been used for several primary and secondary schools. The present version, embodying advances in the design of the steel frame, windows and other components, will be used for the bulk of future school-building programmes in the county.

The site, of about 3½ acres, comprises the gardens of two large Victorian houses, which were in use as the nucleus of the college and had to be retained until the

College of Further Education, St. Albans



8



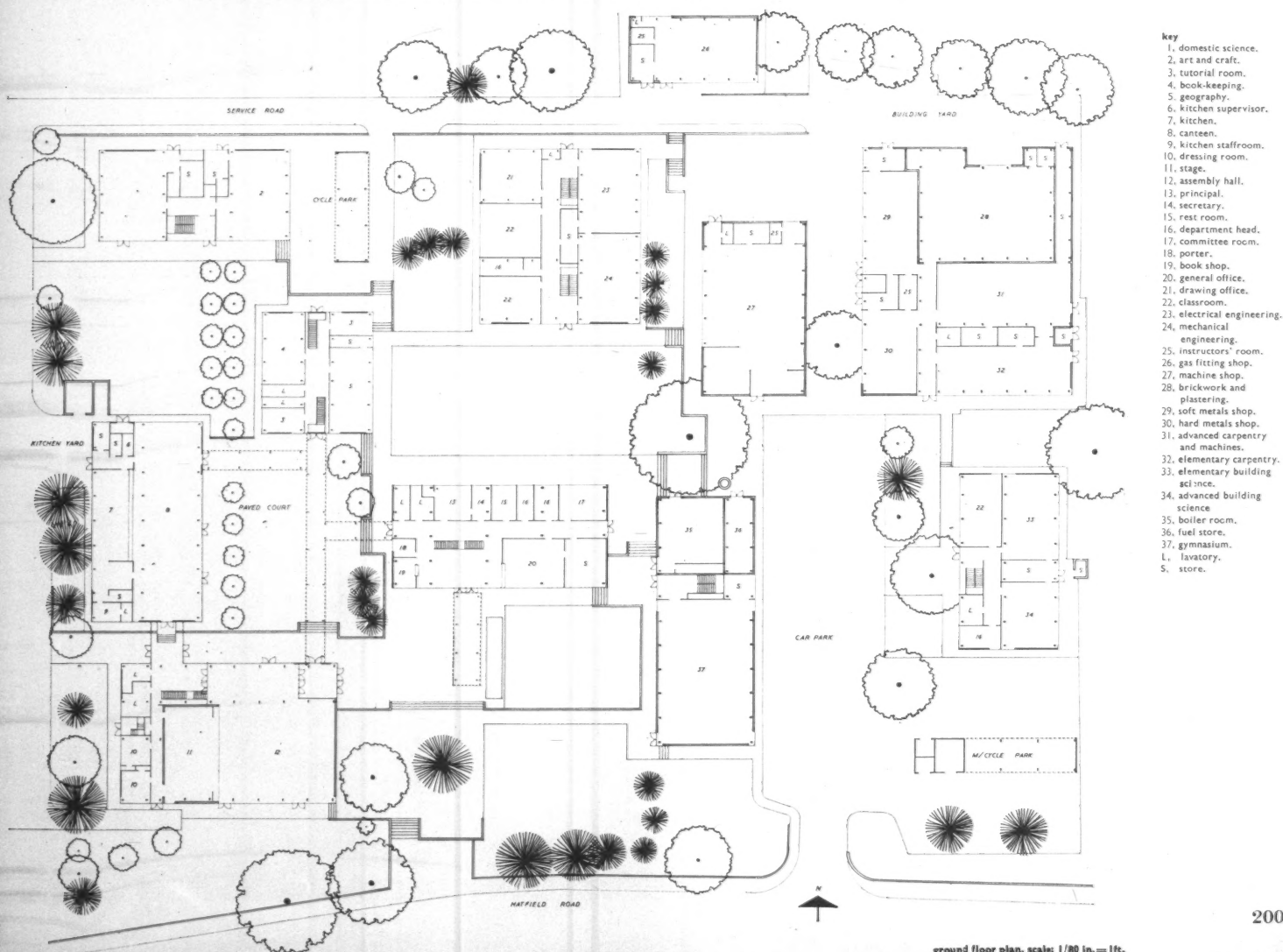
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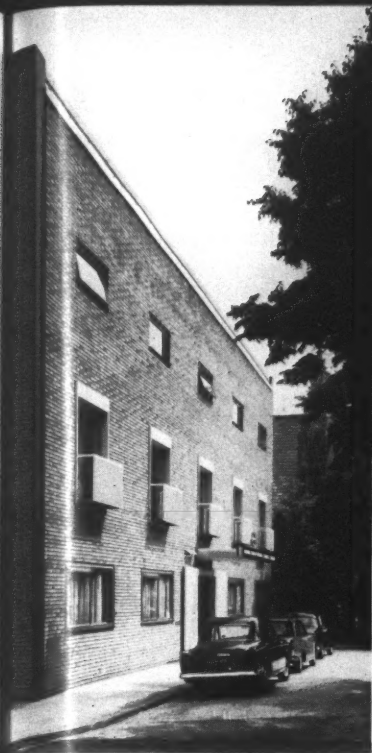
8, the south-west corner of the four-storey teaching block. 9, the boiler-house chimney.

first phase of the new buildings was completed. The latter are laid out as a group of pavilions around an informal campus, some of them, such as the communal block with hall, refectory and common-room, the main administration and library block, and the main four-storey teaching block, being linked at first floor level by glazed bridges.

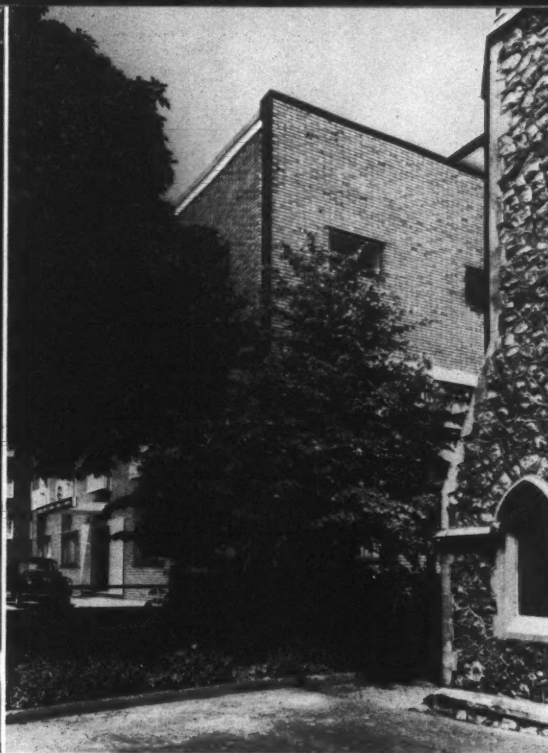
The light steel frame was developed by Messrs. Hills of West Bromwich in collaboration with the architects. The stanchions are fabricated from angles and ring battens and the beams are of light welded lattice construction. Spans of floor and roof beams are in multiples of 2 ft. 8 in. up to 26 ft. 8 in. and 32 ft. respectively, at a constant depth of 1 ft. 6 in. Storey and eill lights are related to the 4 in. base module and allow co-ordinated arrangements of varying height structures with changes of level in multiples of 2 ft. The floor construction is of precast prestressed concrete planks spanning 5 ft. 4 in. between secondary beams. The roof decking is troughed asbestos units of maximum span of 10 ft. 8 in. The external cladding is in aluminium curtain walling. Opaque panels are plastic faced, but cedar boarding is used in larger areas and facing brickwork in workshop areas.

Group architect, R. J. Whitley. Job architect, R. J. A. Wakely. Quantity surveyors, Thomas Barrett, Sons & Partners.





10

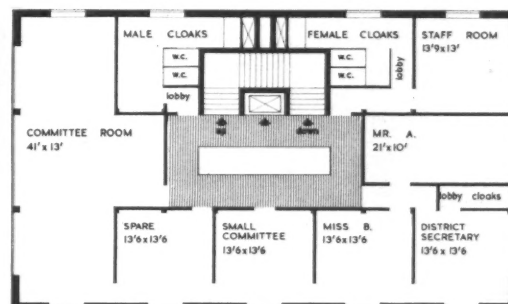


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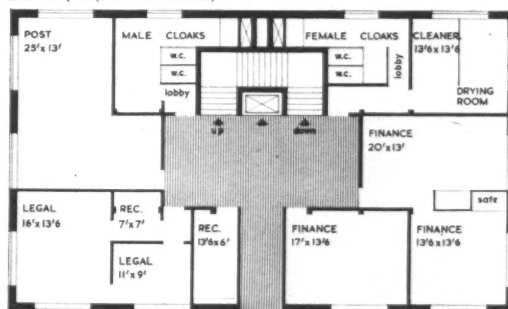
TRADE UNION OFFICES, HENDON.
ARCHITECTS, C. WYCLIFFE NOBLE
AND PARTNERS

A building in Brent Street, Hendon, for the National Union of General and Municipal Workers. It provides office accommodation for the district secretary and his administrative staff. It has three storeys plus a basement devoted to stores and an oil-fired heating system, and a penthouse for lift motor, tanks and rest room. The offices are planned round a central staircase with galleries providing access to the rooms on each floor. The central well and galleries are lit by dome lights in the flat roof.

The local authority encouraged the architect to use a facing brick as the main external cladding material in order to maintain the character of Brent Street. The structure is a reinforced concrete frame designed to suit a steeply sloping site with clay subsoil. The materials used in the interior are Honduras mahogany, light polished oak and olive green terrazzo. Quaker grey and white are used for the wall surfaces. All pipes, plumbing and services are contained in ducts within the building.



first floor plan (second floor similar)



ground floor plan



13

10 and 11, two distant views of the front of the building. 12, close-up of the entrance. 13, the committee room on the first floor.



12

EXHIBITIONS

PAINTING

Picasso once remarked that what compels our interest in Cézanne is his anxiety. This isn't surprising. Cézanne's anxiety was the best that money could buy, and he was able to focus it year in year out upon the act of painting: it moves through every probing, sensitive stroke of his brush like a life-giving sap. Daumier could rarely afford anxiety of this quality and had to put up with a more corrosive kind, associated not with the act of painting, but with the wish to paint. He wasn't even as lucky as Van Gogh. He had a wife to keep and there was no Theo in his life. He earned his living as a cartoonist, and was so badly paid that he had to keep up a steady output in order to make ends meet. There were two short periods in his life in which he gave up cartooning to devote himself to painting, but it was obvious even to his friends that he didn't know how to finish the paintings he started, and most of the pictures in the Tate exhibition were still in his studio when he died. They are miraculous crumbs from a poor man's table.

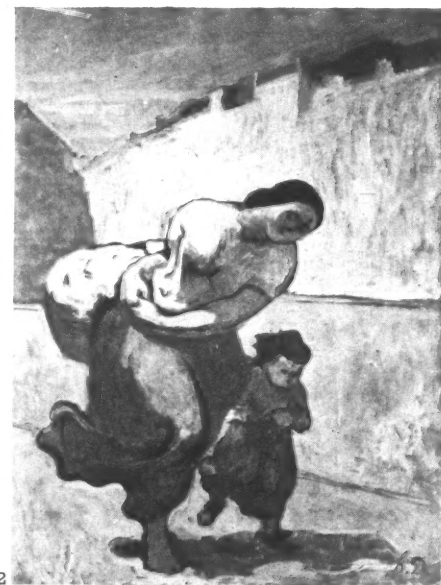
The exhibition, devoted entirely to paintings and drawings, was arranged by K. E. Maison for the Arts Council, and was the largest and most comprehensive to be held for sixty years. There were a hundred paintings and one hundred and thirty-one drawings. The hundred paintings—many of them small—represent a very large proportion of his total output of oils, yet they had the look of being a selection from a much larger *œuvre*, chosen to represent his development over a long period of time, from early works in borrowed styles to the insouciance of a later style with all the experience of a life-time supporting its casual grandeur.

The experts still find it difficult to arrange the paintings in a satisfactory chronological sequence, and Maison catalogued and presented the Arts Council show according to subject: so there were groups of religious and mythological pictures, pictures of bathers, horsemen, children, washerwomen, travellers on the railway, actors and entertainers, connoisseurs of prints and paintings, with fourteen paintings on the theme of Don Quixote making a fitting climax.

Daumier was tormented by his inability to give his pictures a conventional finish, and it was probably not until he was nearing the end of his painting life that he

became sufficiently aware of the nature of his creative gifts to realize that his paintings brought themselves to a natural conclusion before they could assume the appearance of a conventionally finished work. The famous painting of passengers in a third-class railway carriage, 1, is one of the few which his contemporaries considered to have been taken beyond the sketch stage. It is a work of profound social observation, but what makes Daumier a great master is his power to transcend observation, and one feels its presence here only in the treatment of the young mother's hands. The way in which her hands are depicted so marvellously conveys the weight and feel of the sleeping child that it is almost as if one were holding the child oneself. This power to undermine the disinterested appreciation of the spectator by purely pictorial means is very much more in evidence in some of the pictures which never got beyond the sketch stage.

The choice of subject was of fundamental importance to his development as a painter. Many of the subjects he treated called for the kind of observation which he angrily or humorously exaggerated in his cartoons and left no room for an image to be formed out of his own psycho-physical experience. Alan Bowness, in his excellent introduction to the catalogue, points out that Daumier was dependant upon such artists as Millet, Diaz, Decamps and Meissonier—'much more skilled than he was'—for both subject and style, but he does not say how long he considers his



dependence to have lasted. The experts think that in the second and longest period in which he devoted himself to painting, that is to say from 1860 to 1863, his subjects were drawn almost entirely from everyday life, so it seems likely that it was during this period that he freed himself from the example and advice of his artist friends and began to abstract certain figures from the *genre* situation in which he first observed them and transform them into great imaginative conceptions. Almost all the washerwoman pictures are of this high order, but the largest of three paintings, all entitled 'The Heavy Burden,' 2, is



perhaps the finest and certainly the most revolutionary, in treatment. If it is unfinished, it is impossible to imagine how Daumier could have taken it further without doing irreparable harm to its immense physical impact. The background is blocked in, and the woman and child are simplified to the point where characterization is lost and all that remains are the postures of strain and hurry. The woman is bent over sideways by the weight of the basket of washing, but she walks with a mindless persistence and the child is almost running to keep up with her. But because of the sheer vitality with which this desperate weariness has been depicted, and because of the sumptuous nakedness of the paint, which makes no concessions



to the difference between cloth and flesh and stone, the picture radiates well-being. Their flight, and there is no better word for their activity, brings to mind Daumier's concern with the theme of refugees and emigrants and his interest in depicting what his first biographer called 'the feeling of dread that man has before the unknown,' but the washerwoman and her child seem on the point of outdistancing their exhaustion, as if they were responding to some compulsive call such as 'come unto me all ye that labour and are heavy laden. . . .' Daumier has, so to speak, shared with them the victorious outcome of his own creative spirit.

His two large paintings of a man on a rope are equally fine. Bowness says the figure is probably a *badigeonneur*, a man whitewashing. But he has lost his place in the labouring class and has turned, without the faintest sign of a symbolic gesture, without a trace of romantic rhetoric, into an image of Man suspended between Heaven and Earth. The version



reproduced, 3, is quite evidently an unfinished work, and has been nearer to a finished state than it is now. Large areas of paint have been scraped off and one of them has taken part of the man's right arm with it, leaving the arm looking as if it were partly hidden by cloud. As Maison suggests in his catalogue note, Daumier was probably dissatisfied with it and finally abandoned it. But it's so marvellously satisfying as a painting that one cannot help feeling that he at any rate made certain that it would be abandoned at its highest point of achievement. If a *genre* picture of a man whitewashing had been left in this state, the sense of looking at an unfinished painting might well have been acute, but in this picture we are presented with the pictorial essence of what it feels like to be clutching a rope in mid-air. Looking at it, one is not simply a spectator but, for the time being, an athlete.

The Don Quixote paintings undoubtedly belong to the last phase, and most of them must have been painted after he was forced to go back into cartooning, but it's clear that he is unhindered at last by the giftedness of his painter friends, and impervious to what Cézanne might have called their 'widely known methods of production.' The little painting reproduced here, 4, which the Goncourt brothers described as

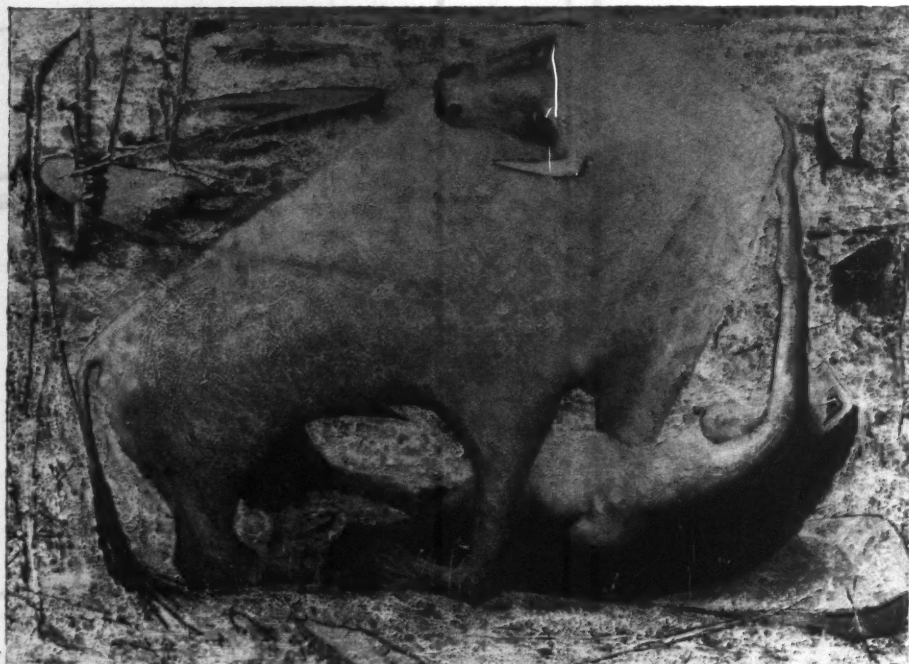
'une spirituelle grisaille' and which gathers up his superb knowledge of the figure into a kind of phantasmal projection of the human condition, is as totally achieved in its own way as Van Eyck's portrait of the Arnolfinis.

At the Tate, his art impinged disturbingly and wonderfully on the present, and yet I suppose that if any single example were included in a mixed show of choice items like the one recently held at the Hallsborough Galleries in the Piccadilly Arcade, it would simply represent one of the beautiful formulæ of the past. The Hallsborough show ranged from a Madonna and Child by Isenbrant to a nice if belated fauve picture of dressmakers by Louis Valtat, but there were no brutal juxtapositions. Even the very fine Paris scene by Jongkind, 5, who was one of the formative influences on Monet, didn't look out



of place, although it was hanging next to a Boucher Shepherdess. It simply turned into a connoisseur's item, and even looked ever so slightly smug, as if the artist had all along intended it to be a sign of some-





7

one else's wealth and good taste.

The charming Boucher, 6, was described in the catalogue as a pastoral scene with a shepherdess and her children, but it is so utterly remote from the life of the peasantry that I prefer to think of the young mother as Europa, the two children as Minos and Rhadamanthus and the horned beast on the left as Zeus, still in the guise in which he carried off Europa, but somewhat softened by domestic bliss and even a little cow-like. Zeus was in any case extremely gentle when he made his advances to Europa: it was his affectionate ways that made her climb in play upon his back, and I have always taken the word 'rape' to mean, in this connection, only that he took her away without actually asking her permission, and that what happened afterwards was a consequence of their mutual esteem.

Clifton Pugh's 'Rape of Europa,' 7, is not amenable to such an interpretation. But it may have a double meaning. It is set in the Australian outback, and the bull looks like the kind of antediluvian variant that the land of the kangaroo might conceivably produce, so Pugh has perhaps used the myth as a symbol of the same situation which Arthur Boyd celebrated as a grotesque marriage between a stone-age giant and a little white woman all decked out in bridal gown and veil, 8, in the remarkable series of paintings which he exhibited at Zwemmer's a few months ago.

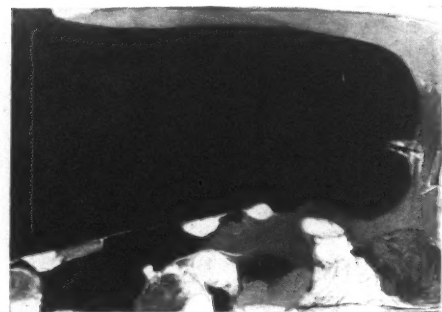
Pugh's 'Rape of Europa' was among the most interesting of the figurative paintings in the exhibition of Recent Australian Painting held at Whitechapel Art Gallery. It included the painters whose work we already know—Drysdale, Nolan, Tucker,



8

Boyd—and introduced many new names. The work was about equally divided between the figurative and the abstract, but Bryan Robertson, who organized the exhibition, says that many Australian artists mistrust the painters who have evolved 'something like an Australian mythology' and are equally suspicious of our enthusiastic response to it. Robertson adds, however, and it seems to me to be well said, that there is 'some confusion in their attitude between national roots and provincialism.'

Brett Whiteley and Arthur Boyd appear to me to present the abstract and the figurative aspects of the Australian situation in terms which need not remain totally opposed. Whiteley has used Arshile Gorky as brilliantly as Boyd has used Chagall, and both of them have produced very personal and vigorous paintings. Whiteley's abstracts don't look like provincial echoes of Gorky, and if they are making a contribution to 'international abstraction' it's because they don't look like anything that's already made the grade. His 'Untitled Dark Painting,' 9, has a naïvely vital, fearsomely organic,



9

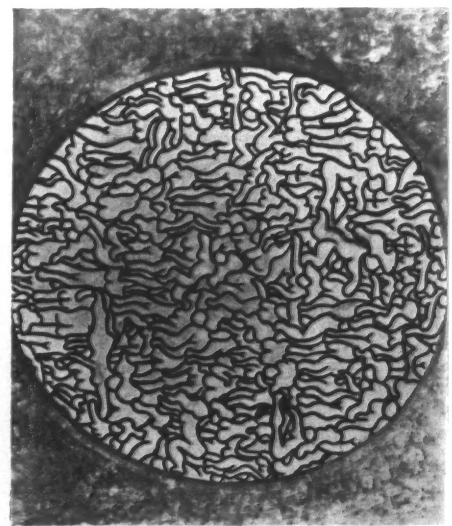


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awkwardly beautiful quality that somehow stamps it as Australian.

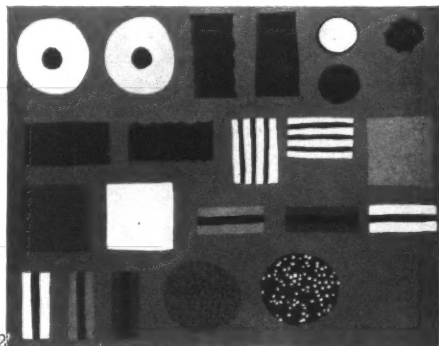
The Boyds are interesting for the same good reasons. The pictures he showed at Whitechapel have been painted since his Zwemmer show. One of them at least is connected with his marriage theme. It depicts the bride alone, lying out flat in her gown and veil and drinking from a jungle stream. The comic and forceful 'Lovers in a Boat,' 10, with its undertones of pathos, is perhaps an ironic comment on the complicated mating customs of humanity in general.

Two bright and clever heirs of Dada have recently been holding shows in London—Bill Copley at the ICA; Patrick Hughes at the Portal Gallery. In both cases it's Dada with a difference. If they are knocking at 'fine art' we don't really notice it, because they have found the appropriately brash means for expressing



11

their delight in our fantastic, ridiculous and specifically twentieth-century environment of visual aids to false conclusions. Copley has devised an isomorph of sex appeal; a naked blonde with a large bosom and wide hips, which he shovels by the hundred on to his canvases and calls the result the ceiling of the Sistine Chapel, or names it after Ingres' 'Le Bain Turc,' 11. It is part of the joke that his squiggly, mass-produced blonde has no sex-appeal whatsoever. More potent in this respect is his image of a girl who lives her life in a corset ad, and wears an eye-patch borrowed from the man in the famous American ads for men's shirts. Hughes uses the clean, flat



shiny colours of Valspar and achieves a kind of farcical, up-to-date heraldry. The perfect example of his work to date is his abstract of liquorice allsorts laid out like a do-it-yourself pack, 12, and, as David Sylvester says in his very pertinent preface, 'it isn't about sweets but about ads for sweets-Bertie Bassett taken apart and his components laid out neatly.'

Robert Melville

FUNCTIONAL TRADITION

A MODERN FOOTBRIDGE

A footbridge in the grounds of a villa garden sounds more like a task for an eighteenth-century than for a modern architect, and it is one of the merits of the timber footbridge illustrated here (and recently constructed in the garden of a villa at Horsford, Torquay, by John R. A. Wilson) that its design is as timeless as the purpose it has to serve. This is because it belongs to the Functional Tradition, which operates independently of style and fashion and bases architectural character on the straightforward, and therefore, expressive, use of structure and materials.

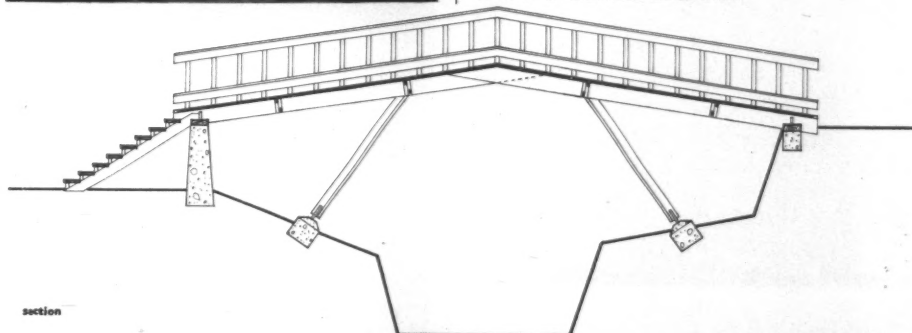
The bridge, 1, links two parts of the villa garden across a sunken approach drive, giving clear headroom of 15 ft. above the surface of the drive and leading the pedestrian right up to the walls of the villa, 2. The span between concrete sup-



ports is about 33 ft., but the main beams of the bridge (which consist of 11 in. by 2 in. timbers bolted together in pairs) are supported intermediately by diagonal struts springing from concrete foundations in the banks of the drive. The decking of the bridge, the handrails and the flight of steps at the end farthest from the villa are all of timber, pressure-treated with creos-



sote, and the handling of these details, 3, also shows the vigour and simplicity the Functional Tradition demands.



section

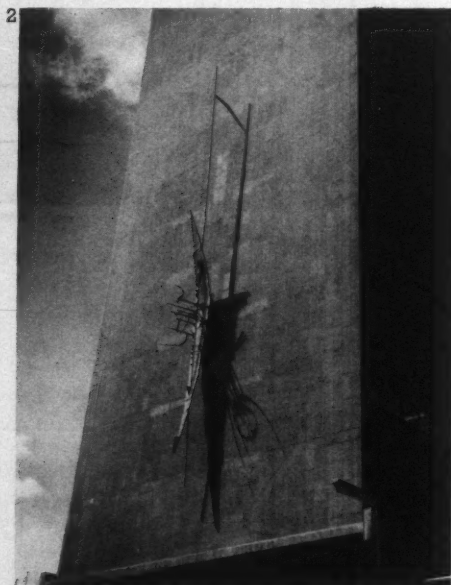
SCULPTURE

BRAVE NEW PATRONS

It is a long time since the comment was first made that in the modern world the patrons of the arts ought to be big business, which has the money that aristocracy has no longer. Big business also has—at least in theory—the advantage of being more closely in touch with the various modern developments that have changed the nature of art and through which it maintains its relationship with modern life. But until lately business men have shown themselves, with a few exceptions (the directors of the Orient and the P & O shipping lines—see pages 181–193 are among them) conservative and unadventurous patrons.



1, Barbara Hepworth's 'Meridian,' in the courtyard of State House, High Holborn. 2 and 3, Geoffrey Clarke's sculpture on Thorn House, St. Martin's Lane.



3





4, Sculpture by Elizabeth Frink at the Carlton Tower Hotel, Chelsea.

It has already been noted that this does not now apply quite as much as it did to the patronage of architecture. Now there are signs that things are improving in the sphere of the fine arts, especially sculpture. Three major London buildings—two office-blocks and an hotel—have been embellished externally with works by three of the best British sculptors, all more or less abstract in form. These three works are Barbara

Hepworth's in the courtyard of State House, Holborn, 1 (illustrated in the AR in April), Geoffrey Clarke's on the end wall of the tower of Thorn House, St. Martin's Lane, 2 (which building was illustrated in February, 1960, before the sculpture was in position—it went up in April) and Elizabeth Frink's on the façade of the Carlton Tower Hotel, Chelsea, 4 (which has just gone up; some interior details of the

hotel were illustrated last month).

The fact that these sculptures are all displayed to public view is particularly encouraging. It is easier to be bold and uncompromising in private or inside a building than few of the public visit. Sculpture outside a building means that its sponsor is willing to identify himself publicly with the taste it represents. That some business men have had that much courage has resulted in London suddenly acquiring several worthwhile public examples of the sculpture of our own day, in which it has hitherto been very poor.

COUNTER-ATTACK

HELENSBURGH

Helensburgh: the start of the 'Royal route to the isles,' the 'garden city of the Firth of Clyde.' The first claim presumably refers to a fact; the second needs looking into. Helensburgh was (as they say of the variety programmes) based on an idea by Sir James Colquhoun, who owned the land and decided to found a town there in 1776. He named it after his wife. Sir James's plan was severe, a piece of paper planning characteristic of Scotch urban developments of this period. Helensburgh's works better than some, because the land rises fairly steeply to the north, and the hills prevent the views outward from merely disappearing into the distance. So the east-west streets run along the contours; the north-south ones climb. Colquhoun Square was planned as a grand central place.

The town grew slowly until 1857, when the Glasgow, Dumbarton and Helensburgh Railway



Map of Helensburgh.

was opened. As the official guide tactfully puts it, 'this helped the progress of the Burgh, and enhanced the value of property in the district.' The ground plan was then filled in, though in a way which was surely not what the original designer had in mind: Helensburgh, apart from the sea-front and a few streets immediately round the station, is a town of large detached villas in large detached gardens, a Victorian Letchworth.



Typically the villas, 1, are solid, tough-looking and too big: many of them are divided into flats. (One of the last of this kind to be built was Mackintosh's Hill House, probably the best private house he did, and still containing many of the original fittings and furniture). The gardens and streets lack big trees and are a little bare;

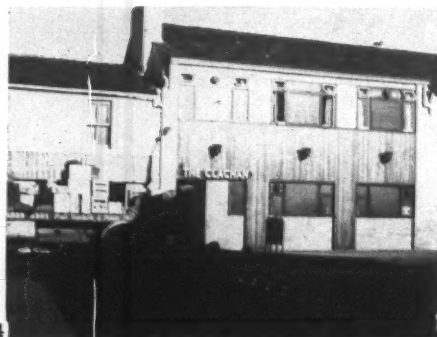


only Montrose Street, 2, has the real arcadian touch. But as a period piece Victorian Helensburgh has character.

The centre of the town, on the other hand, is like that of nearly every Victorian town in Scotland—drab, stingy and dilapidated. The sea-front has a kind of crude vigour, but an asphalt car-

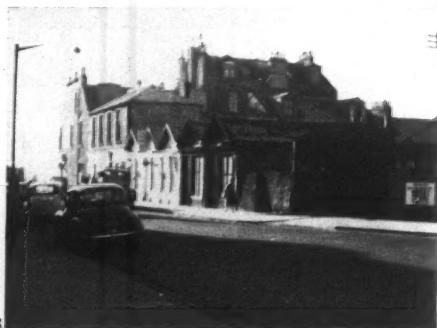


park, 3, does its dreary best to cut the town off from the sea. The newest buildings are in the contemporary style; and pretty contemporary they are, too, 4. Moreover, there is a plan on foot, at a present estimated cost of £280,000, to enormously extend this car-park by reclaiming some of the land shallowly covered by the estuary. The idea is to get the parked cars off Clyde Street, so that it can do its duty as part of a popular route from Glasgow to the West Highlands. Certainly something needs to be done, for in the summer the town

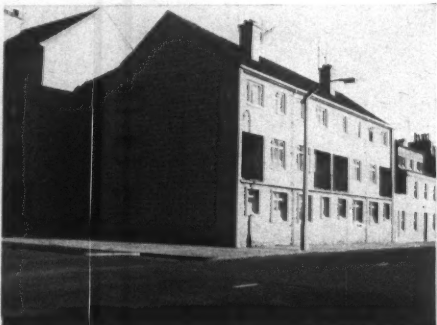


seethes (and at present the only plausible by-pass route would be along Montrose Street, which would be very unfortunate). But this is a dismal scheme. An alternative, which might in the end cost no more, would be to use the reclaimed land for the road itself (perhaps with car-parking underneath). Through traffic could then effectively by-pass the busy part of the town.

The town council is also said to have in hand a redevelopment plan for the sleazy area between the sea and the railway. Here again something



needs to be done. At present, 5, it is a mixture of outworn houses, decaying back-yards and land never properly built on, decrepit shacks and the gas-works. (Colquhoun Square needs some attention, too. It never really got going, and it is now a windy and comfortless hangover from more robustly ambitious times. The area in the middle is carved into four squares by the roads which cut across it. As neither of these is supposed to take through traffic, there is no reason why they shouldn't go round instead of across; there would then be room in the middle for decent-sized trees and the paved area of a real place). A comprehensive scheme is clearly needed; and here the Dumbartonshire county plan ought to help, but doesn't. For though already nine years late, it does not yet exist. So the burgh will do the work—or perhaps will merely let it be done. The town council has managed a small block of flats on the



Esplanade, 6, cheap and clumsy, with a coarseness of detail eloquently shown up by the early nineteenth-century houses next door.

They don't augur well for burgh action in the

future. But at least they are better than the post-war private developments which now more or less surround the town. These are in the very worst tradition of speculative building—the site cleared



of its trees at the start, the houses self-assertive, vulgar and hideous, the trim wretched, and no planning of the estate whatsoever, 7. It is perfectly plain that no attempt has been made by either the builder or the planning authority to think out what would be a tolerable addition to the town. Anything goes, so long as there are houses. Two partial exceptions: some flats with decently modest detail, lying under the hills (known affectionately by their more tasteful neighbours as the barracks or the prison), and on one estate a row of five houses actually designed by an architect. They are not striking (that in itself is something of an achievement), but they and the next-door trees do suggest how some of Helensburgh's garden amenities might have survived in a bearable environment, 8.



But that chance has gone. The hills remain—for the moment. The town council seem convinced that more estates to the north are out of the question.* Owing to the height, a new water-tower and (presumably) pumping-station would be needed; the council think that this would make the estate prohibitively expensive. Why? As the helpful guide eagerly points out, the 'fine new houses . . . typify the growing demand for property in the town, accelerated by the electrification of the railway.' Helensburgh is the most favoured of Glasgow's outer suburbs, and land values are already phenomenally high. There is almost certain to be strong pressure from the land-hungry speculators who have made such a mess already. This needs to be foreseen, not just given in to.

Helensburgh started 200 years ago with a plan—not a very interesting one, but it was kept to and it has given the place some coherence. To-day it is a first-class example of selling out to the highest (or it may be the quickest) bidder. Obviously a planning consultant has never even been considered. He is urgently necessary if the town is to be kept from total spoliation.

Andor Gomme

* To the west there is supposed to be a green belt between Helensburgh and Rhur: it must be all of 200 yards wide. To the east it's anyone's guess. To the south mercifully there is the estuary, though even this doesn't seem inviolable.

SKILL

UP-AND-OVER DOORS, 2

Last month Anthony Wylson considered the technical problems posed by the up-and-over door and began his review of the products on the market. This month he completes his review of products and draws his conclusions.

HENDERSON'S 'Ultra' overhead door gears include a range of units that can operate doors up to 325 lb. weight. The standard range allows for 140 lb., 150 lb. and 210 lb. The 'Ultramatic' 180 is a self-opening unit. With all units, the balance is on the coil spring system and the open position brings the door completely inside the garage space. The top section of the door is guided along a galvanized steel track by means of nylon wheel runners. A headroom of 1½ in. and sideroom of 2½ in. is required. The standard 'Ultra' from 140 to 210 range in price from £11 to £11 14s. The 'Ultramatic' unit costs £16 5s. and the 'Ultra' 325 is priced at £34.

E. Hill Aldam and Co. Ltd. manufacture the 'HILLALDAM FLY-OVER TWO' and 'FLYOVER DELTA.' Both have tension coil spring counter-balance, but the Flyover Delta has no guide tracks. It is guided by a system of pivot arms that link jambs and door unit. The Flyover Delta is also equipped with an improved locking spring bolt, which can be operated from within the garage by an inside T handle. The gear of the Flyover Two for doors up to 210 lb. costs £11 15s. whereas the Flyover Delta for doors 60-120 lb. costs £10 15s.

The 'PORTALDOR' overhead unit is made by the Portal Engineering Co. Ltd., of Reigate. The unit is hinged at the top and opens wholly outwards which gives complete clearance within the garage, and with a similar 'jamb' detail to an outward opening door. The construction is of rustless 'Galvorsheen' steel ribbed sheet and channel throughout. The framing to the door is gusseted. The weight of the door is balanced with one counterweight on a pulley system. Prices for complete units range from £23 for 6 ft. 6 in. by 7 ft. to £25 for 7 ft. 6 in. by 8 ft. Fitting instructions are provided in order that the door can be installed by an unskilled person.

Westland Engineers Ltd. produce a wide selection of overhead door systems. These are mostly based on the counterweight and pulley principle.

The 'GARADOR' is a standardized unit that is manufactured in three sizes, 7 ft. by 6 ft. 6 in., 7 ft. 3½ in. by 6 ft. 4 in. and 7 ft. 5 in. by 6 ft. 6 in. The intermediate size is used for Wimpey houses. The unit is constructed of a light gauge aluminium skin on a heavy gauge aluminium channel frame, braced and gusseted. Horizontal swages dominate the external appearance of the door. The operating gear is of steel with nylon wheels and cast concrete counterweight. The vertical guide tracks are set in the jambs and pivot arms provide a further guide and

fulcrum to the opening operation of the door. The door is weather stripped along top and both sides. The door closes with a spring latch and provision is made for locking this handle on the outside by padlock. All sizes cost £17 10s. ex-works. A car-type lockable handle can be fitted for an extra 10s.

The 'WELRISE' and other Westland overhead doors are made to measure. The 'Welrise' unit works along similar lines to the 'Garador' but incorporates a horizontal track as well as the vertical track set in the jambs. The counterweight can be placed either immediately at the sides of the doors or at the rear of the garage. The door is manufactured in two types of construction, one for private garages or small openings, and the other for large industrial openings or private double garages. The prices extend from £23 2s. for 6 ft. 6 in. by 7 ft. to £41 10s. for 7 ft. by 12 ft. 6 in. unit. Larger doors, 12 ft. to 16 ft. wide, are priced at approximately 17s. 6d. per sq. ft. Sidewall clearance for light and heavy doors is 8 in. or 10 in. respectively if weights are hung at side of door and 3½ in. or 4 in. if weights are hung on rear walls. Six inches headroom is required in all cases. Rear hung cables amount to an extra of 15s. per side.

Openings up to 24 ft. are covered by the 'WELLIFT' overhead door. This is similar in principle to the

'Garador' with only a vertical track set in the jambs. It can be hand or electrically operated. It is manufactured in two types of construction, one for private garages and small industrial openings and the other for large industrial openings or private double garages. The smaller unit is constructed of horizontally fluted aluminium sheets in a steel channel boundary frame, cross braced on the inside face. Doors between 8 ft. 1 in. and 12 ft. wide have a vertical 8 in. wide box section centrally positioned. The door is operated along vertical heavy gauge steel tracks and by steel arms that act as a fulcrum and further guide. The larger unit, up to areas of 300 sq. ft. is divided into panels by 3 in. wide steel sections, the panels being fitted with fluted aluminium sheets cross braced on the inside.

On all hand operated doors there is a slam type catch and provision is made for locking with a padlock. On electrically operated doors, security is obtained by means of a solenoid operated latch working in conjunction with the electrical operating mechanism.

The price for the 'WELLIFT' of lighter construction for openings up to 10 ft. is approximately 10s. per sq. ft. and 17s. 6d. per sq. ft. for the heavy industrial construction. For the former, clearances required are 8 in. sidewall, 6 in. headroom if hand operated and 12 in. headroom if

electrically operated. If weights are hung on rear wall, sidewall clearance becomes 3½ in. minimum. Clearances for the heavier doors are up to 12 in. for sidewall and up to 15 in. for headroom for both manual and electrically operated. Sidewall clearance is reduced to 6 in. when weights are hung on rear wall.

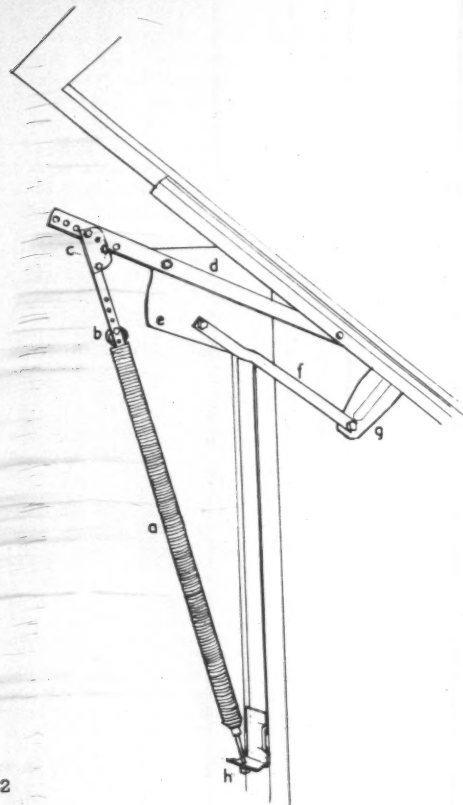
The 'WELTILT' door is similar in appearance to the 'Welrise' and 'Wellift,' but does not project from the opening. The combination of a sloping and horizontal track permits the door to be located completely within the building line. It is constructed of aluminium sheet in a steel channel boundary frame, cross braced on the inside face. Doors between 8 ft. 1 in. and 12 ft. have a vertical 8 in. box section centrally positioned. The tracks are of heavy gauge steel section and guide rollers are of nylon or ball raced according to the size and weight of the doors. A 10 in. clearance is required either side of the opening if the weights are adjacent to the opening. 3½ in. to 4 in. is required if the weights are situated on the rear wall. Six inches headroom is required in all cases. Costs vary from £27 14s. 5d. for a unit of 7 ft. wide to £47 7s. 1d. for a unit 12 ft. wide by 7 ft. 6 in. high.

The Westland 'WELFOLD' overhead door is designed for high openings and particularly suited to large industrial openings and fire stations.

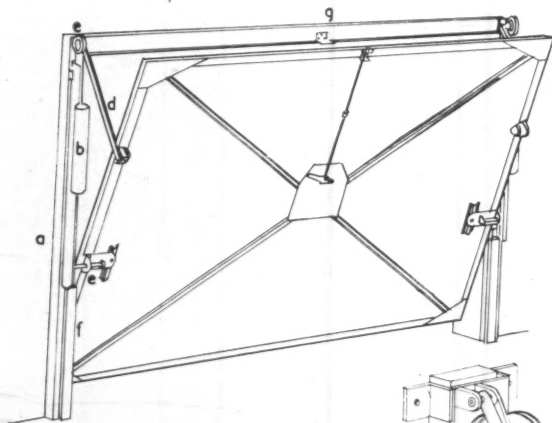
1, Henderson 'Ultra' 325 gear. Note stiffeners at top and bottom of door.



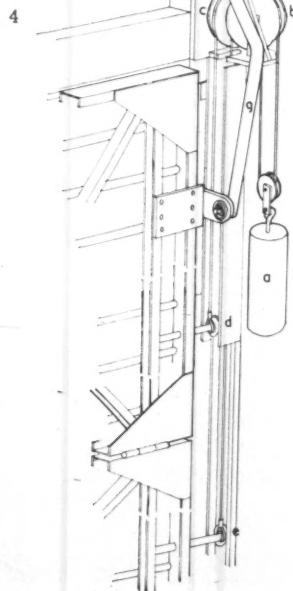
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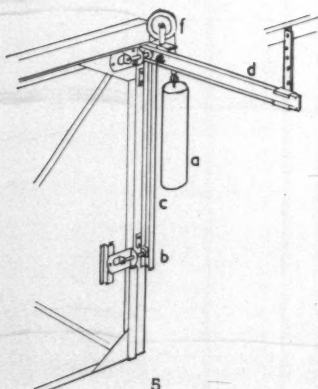
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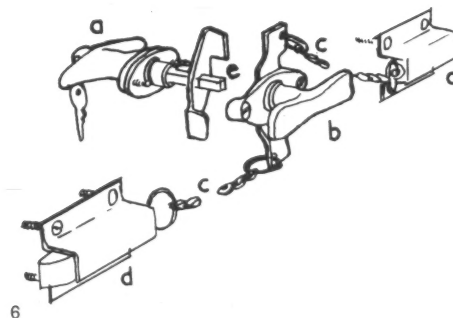
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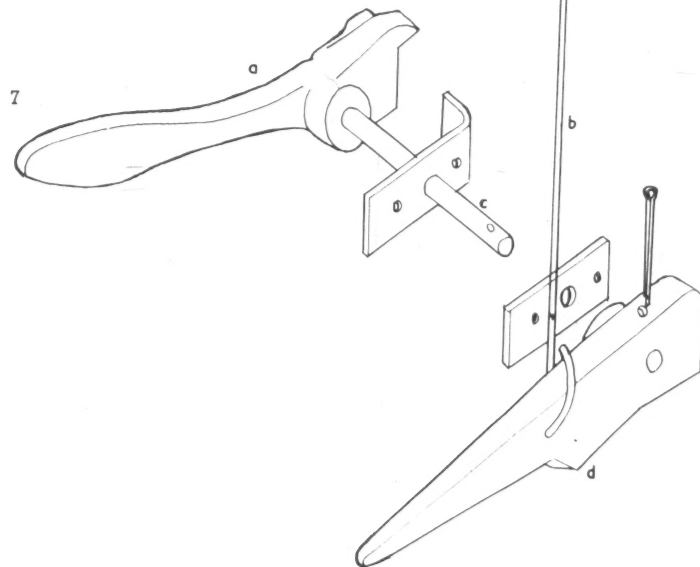
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- 2, Hill Aldam 'Flyover Delta.' Spring coil gear without tracks. a, spring; b, tension adjustment; c, jamb plate; d, main arm; e, control link; f, door plate; g, lower spring bracket.
- 3, Westland 'Garador.' Counter weight, pulley and vertical track at jamb. a, track; b, counterweight; c, pulley; d, bracket; e, wheel bracket; f, weather strip; g, latch keeper.
- 4, Westland 'Welfold' unit, showing door construction and counterweight systems. a, counterweight; b, pulley for lower section of door; c, pulley for upper section of door; d, wheel in track to upper section of door; e, wheel in track to lower section of door; g, bracket arm.
- 5, Westland 'Welrise' unit with horizontal and vertical track, counterweight and pulley. a, counterweight; b, door bracket and wheel for vertical track; c, vertical track; e, door bracket and wheel for horizontal track; f, pulley.
- 6, Hill Aldam locking spring bolt detail. a, outside handle; b, inside 'T' handle; c, connecting chain; d, spring bolt; e, spindle.
- 7, Westland 'latch' gear. a, outside handle; b, latch connecting rod; c, spindle; d, inside handle.

In the open position, the door unit folds into a flat plane that lies immediately beneath the door lintel, projecting half in and half out. The opening process is straightforward, based on counterbalance weights situated either side of the door. These weights act on each panel. The panels are guided by vertical heavy gauge steel tracks and pivoted tubular steel arms. Closing requires a pole to hook the lower leaf down. The unit can be electrically operated. The 'Welfold' is constructed of aluminium sheets set in steel channels. Alternatively, the doors can be divided by framing into small panels in which glass or aluminium can be fixed.

The units are made to measure with a maximum size of 24 ft. wide by 24 ft. high. Locking devices are as for the other Westland doors. Twelve inches clearance is required for units up to 17 ft. high and 15 in. for over 17 ft. A sidewall clearance of 12 in. is required.

The 'WELROLL' is the only Westland overhead door that does not use the counterweight principle. This unit is constructed from light alloy extensions forming horizontal panels about 2 ft. deep. These panels are

hinged together and run on ball raced wheels in a track that extends from a vertical position at the jambs and curves to a horizontal position over the garage area. The panel infilling is in either 14 s.w.g. light alloy or $\frac{1}{8}$ in. perspex. The counterbalance is by means of torsion springs situated behind the lintel operating cable drums at each side. This gives fast operation, particularly suitable to fire stations, ambulance stations, airfield crash and rescue stations. The speed of the doors opening is checked by pneumatic buffers.

The maximum size of this unit is 15 ft. high and 21 ft. 6 in. wide. The unit is made to measure and on cost it is not recommended for small domestic garages. A 20 in. headroom is required and clearance of 6 in. either side of the opening.

The 'WELPACK' door is particularly suitable for wide openings as each panel remains in vertical position. It is a vertically lifting door composed of a series of 14 gauge light alloy panels 18 in. deep designed to interlock along the top and bottom edges. These panels are manoeuvred up or down vertical heavy steel jamb guides. As the panels are raised they

clear the head of the opening and stack into a compact group about the height of a single panel and 1 in. per panel in depth. The door is operated by means of a hand chain or motor control and the counterweight cable is taken up on a spiral in which the increasing circumference compensates the increasing weight as the panels stack and add to the load being lifted. Electrically operated doors are fitted with a safety bar that causes the doors to open if it comes into contact with an obstruction whilst the doors are closing.

Sidewall clearance requires 2 ft. 1 in. on the side of the drive unit and 6 in. on the other side. A

depth of 4 ft. above this lintel level is required to accommodate drive mechanism and a minimum headroom of 2 ft. 7 in. is required. The price for the unit varies from 22s. 6d. per sq. ft. for a unit of approximately 300 sq. ft. to 20s. per sq. ft. for a unit of 400 sq. ft. Electrical equipment is priced at approximately £50. Size of units are up to 24 ft. wide and 20 ft. high.

Conclusion

In most cases it is possible to control the design of the actual door. The size and weight must be assessed. It is then necessary to decide upon the 'open' position of the door and

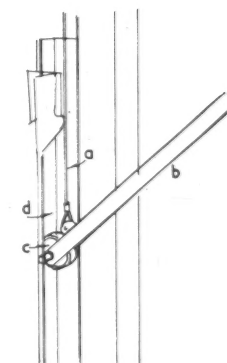


8, the Westland 'Welpak' door.

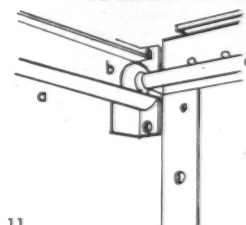


9, the Westland 'Welfold' door for high openings.

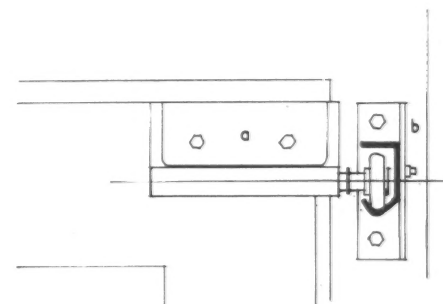
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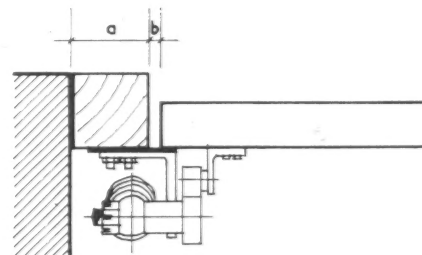
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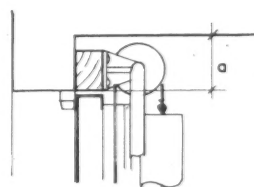
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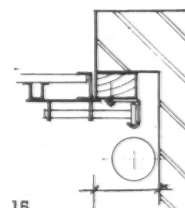
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10, 'Portaldor' thrust arm and vertical track at jamb. a, counterweight connection; b, thrust arm; c, wheel; d, track.

11, Henderson 'Ultra' horizontal track at lintel level. a, track; b, wheel; c, door bracket.

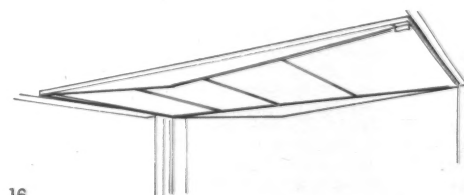
12, Henderson 'Ultra' horizontal track at lintel level. a, door bracket; b, jamb bracket.

13, Henderson 'Ultra' jamb clearance, and door clearance to allow for lateral movement. a=2½ in.; b=½ in.

14, Westland 'Garador' lintel clearance. a=4 in.

15, Westland 'Garador' side wall clearance. a=4½ in.

16, Henderson 'Ultra' 325 unit with tapered timber stiffeners to top and lower rail to point of support.



16

SKILL

the path taken by the door when opened. Space available for clearances must be known. On these points, it is possible to decide on the type of gear. Locking devices and opening mechanisms can then be considered.

In selecting the type of door and gear, the factors discussed, cost, size, weight, type of gear, path taken by door and open position, and space available for clearances, must be considered.

The basic action of either counterweight or spring coil door gear, where the centre of gravity of the door is not maintained on a vertical path, must balance the leverage effect of the door.

In the case of the counterweight system, the vertical track at jamba locates the centre of gravity of the door, and easy operation depends upon the smooth running of track wheels and pulley. In the case of the Batley unit, the leverage effect of the door is counteracted simply by means of a lever arm balance. In these cases, where the door partly projects in the open position, the base of the door should be designed to divert water settling on the flat surface, clear of the operator when the unit is closed.

In most cases involving spring coil gear incorporating a horizontal track at lintel level, the door is supported at the corners. The spring either acts on an extended lever or directly from jamb to the lower corners of the door. The former avoids obstruction at the sides of the opening which may amount to 5 in. (an important consideration in small openings), where as the latter is mechanically more effective. The lightness of action depends upon the careful adjustment of coil tension. Over-tensioning will give springy action on opening, but makes closing difficult. In the case of the 'Ultramatic,' the leverage effect of the door, which varies over the course of the opening operation, is carefully controlled by a secondary mechanism, adjusting the effective leverage and spring tension of the coil. Otherwise the coil spring adjustment, to allow for a range of door weights and sizes for a particular gear mechanism, is sometimes a compromise to achieve a continuous balancing effect in the opening operation. In most cases, coil spring gear places the open door within the building line.

Both counterweight and coil gear require smooth running track mechanism and light door units for easy action. In fact, the door has to combine lightness with structural stability and weather resistance. In this respect, the light metal unit has an advantage. Timber doors adapted from hinge frames would be better placed upside down to bring the centre of gravity to a high position. In designing doors, the points of support at the open position give a guide to the design of stiffeners and bracing. 'Bow spring' metal bracing can cause curving when the door is in a vertical position. A combination of timber and metal bracing is recommended especially in the case of wide openings (double garages). If the door projects from the building line, a weather rail to throw the water clear of the operator could be part of the bracing system.

Doors operated with trackless gear must be carefully braced against whipping caused by uneven action on either side. In all units a degree of lateral movement is allowed for in the door to frame tolerances.

The majority of small units can be fixed by unskilled labour with assembly instructions. The heavier units require specialist advice and installation.

Name of Manufacturer.

Balance and Track position.

Clearances and Locking System.

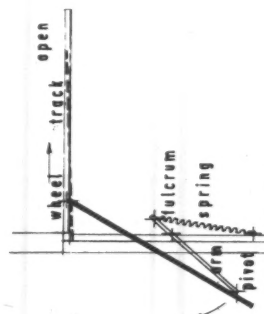
Size and Weight.

Prices, ex Works.

Comments.

12 Henderson's

Ultra 140
Ultra 150
Ultra 210
Ultramatic 180
Ultra 325
P. C. Henderson Ltd,
Harold Hill, Romford,
Essex.



Tension coil spring.
Horizontal track at lintel level.

Nylon wheels in galvanised tracks.
Solid steel arms, brackets and steel weatherstrips.
Exterior quality plywood doors.
Ultra 325 with top brass rollers, roller bearings running in galvanised tracks.

Headroom 11".
Slidroom 21".
Cylinder lock for locking or unlocking inside and outside extra.

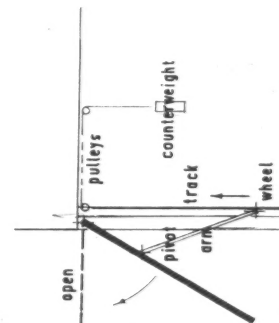
Standard timber doors, 7' and 8' wide and 7' and 6' 6" high with standard frame, 3" x 3".

Gear only.
Ultra 140, 5' 11" to 6' 6" high, 40 to 140 lbs., £11.
Ultra 150, 6' 3" to 7' high, 70 lb. to 150 lb., £10/15/0.
Ultra 210, 6' 9" to 7' 6" high, 100 lb. to 120 lb., £11/14/0.
Ultramatic 180, 6' 9" to 7' 6" high, 140 lb. to 180 lb., £16/5/0.
Ultra 325, 6' 10" to 7' 6" high, 225 lb. to 325 lb., £34.

Door contained within building line in open position.
Ultramatic includes mechanism which opens door automatically after it is released from a catch.
Doors may be wholly or partially glazed.
Gear also suitable for metal doors.
Ultra 325 suitable for double garages; bracing for doors up to 17' wide.

13 Hillaldam

'Flyover Two'
E. Hill Aldam & Co.
Ltd, Britannie Works,
Red Lion Road,
Tolworth, Surbiton,
Surrey.



Tension coil springs.
Horizontal track at lintel level.

Nylon wheels run on steel axles. Right steel section track, steel brackets and weatherstrips.
3" x 3" timber frame recommended.

No headroom required above 3" timber frame. Standard Espagnolette bolts only operate from outside in conjunction with padlock.

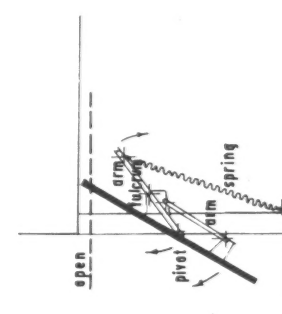
Up to 7' 6" high and 210 lb.

Gear only, £11/15/0.

Stiffeners provided as an extra for hinge doors conversions.
Spring bolts that can be operated by inside and outside, £1/15/6 extra.
Door stops to be provided.

14 Hillaldam

'Flyover Delta'
E. Hill Aldam & Co.
Ltd, Britannie Works,
Red Lion Road,
Tolworth, Surbiton,
Surrey.



Tension coil spring.
No tracks.

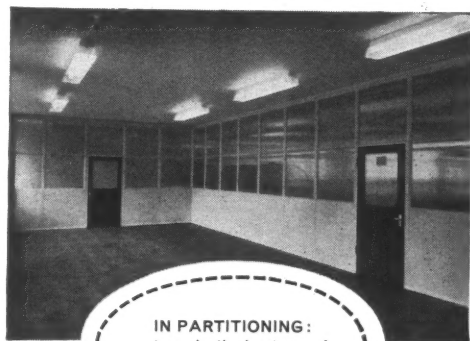
Gear steel throughout ball bearing pivoted main arms.
3" x 3" timber frame recommended.

Espagnolette bolts for operation outside only.

From 6' 3" to 7' 6" high and from 60 lb. to 180 lb. weight.

Gear only, £10/15/0.

Gear fixed entirely to jamba and the door; large pivot plate either side.
Spring bolts with chrome locking handle, £1/15/6 extra.
Door trusses, 8/6 extra.

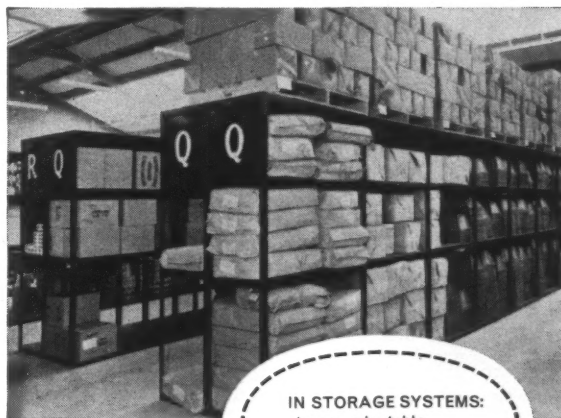


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light and space



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efficient—space saving

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easy to erect and use

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HOWARD WAY, HARLOW, ESSEX

Please send me your publications on

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Steel office furniture ☐

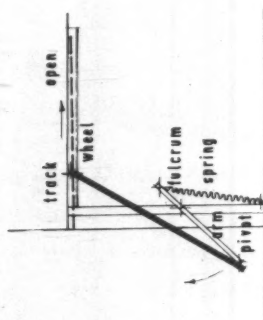

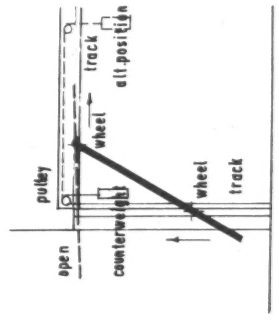
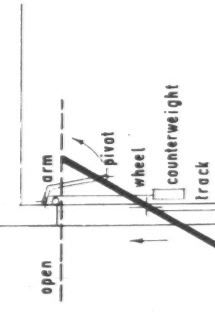
Steel storage systems ☐

NAME _____

ADDRESS _____

AR

SKILL

Name of Manufacturer.	Balance and Track position.	Construction.	Clearances and Locking System.	Size and Weight.	Prices: ex Works.	Comments.
15 Portalor Portal Engineering Co. Ltd, Pool House, Bancroft Road, Reigate, Surrey.	Counterweight and pulley system. Vertical track in jambs.	'Galvasheen' steel ribbed sheet and channel.	Jamb, nil. Lintel, nil. Key in handle and cylinder lock.	Standard units up to 18' wide. Larger sizes to special order. 6' 6" high x 7' wide. 7' 6" high x 8' wide.	Complete unit. £23. £25.	Open door forms awning. Counterweight can be placed anywhere in garage. Fitting instructions provided for unskilled labour. Draught excluding strips down each side. Base or top strip at 2/- per ft. extra.
						
16 Westland 'Garador' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley system. Vertical track in jambs.	Door: light gauge swaged aluminium skin set in heavy gauge aluminium channel frame, gusseted and cross braced. Steel operating gear vertical tracks and pivot arms.	Headroom clearance 4'. Side wall clearance 4'. Centre spring latch locked by padlock on outside.	Standard sizes: 7' wide x 6' 6" high. 7' 3 1/2" wide x 6' 4" high. 7' 5" wide x 6' 6" high.	Complete unit, £17/10/0.	Car type lockable handle can be fitted for 10/- extra.
						
17 Westland 'Weirae' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley system. Vertical track in jambs and horizontal tracks at lintel level.	Door is manufactured in two types of construction for small and large units. Aluminium construction door of fluted sheets braced on inside. Doors 8' 1" to 12' have vertical 8" wide box section centrally positioned. Heavy gauge steel tracks.	Light doors 6" headroom, 8" side wall clearance if weights at side; 3 1/2" side wall clearance if weight on rear wall. Large doors 6" headroom; 10" side wall clearance if weights at side; 4" side wall clearance if weights on rear wall. Centre spring latch locked by padlock on outside.	No standard sizes. Light type of construction for openings up to 12' and areas up to 100 sq. ft. and doors up to 150 lb. Large type for openings up to 16' and areas up to 200 sq. ft. and doors up to 600 lb.	Complete unit from £23/0/0 for 6' 6" x 7' to £41/10/0 for 7' x 12'.	One third of door projects at open position to form canopy. Cylinder deadlock can be fitted as an extra. Counterweight can be situated by side wall or at rear wall.
						
18 Westland 'Wallit' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley system. Vertical track in jambs.	Doors of aluminium fluted sheets, braced inside. Two constructions, one for small openings up to 8' and the other for large industrial openings to 12'. Heavy gauge steel tracks and pivot arms.	Small doors up to 10' wide, 6" headroom; 8" side wall clearance if weights at side; 3 1/2" side wall if weights on rear wall. Large doors 10' 1" to 24', 12" to 15" headroom; 9"-12" side wall clearance if weights at side; 6" side wall clearance if weight on rear wall. Centre spring catch locked by padlock outside.	Light construction for openings up to 10' wide and 8' high. Large constructions for openings up to 24' wide and 300 sq. ft.	Guide to price. Openings up to 10' wide approx. 10/- per sq. ft. Heavy construction, approx. 17/6 per sq. ft.	Door in open position projects to form canopy. Can be electrically operated, 12" to 15" headroom required. Cylinder type deadlock can be fitted as an extra.
						



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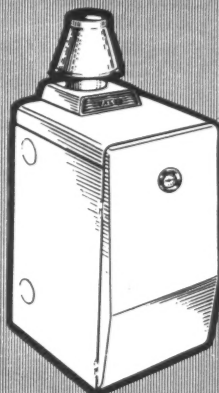
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has an output of 45,000 B.T.U.'s constant loading suitable for up to 9 radiators (220 sq. ft. surface) and 30 gallons of hot water.

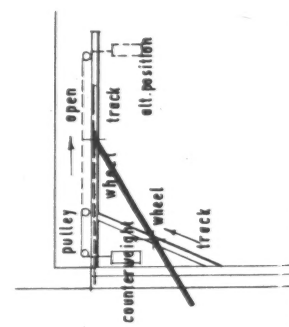
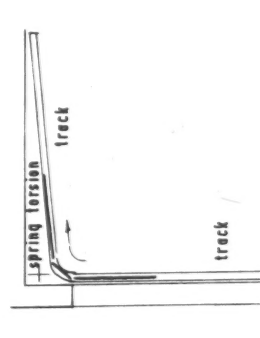
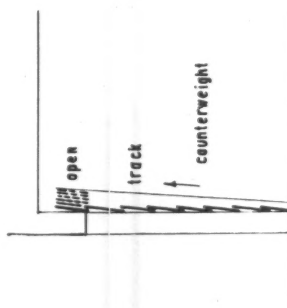
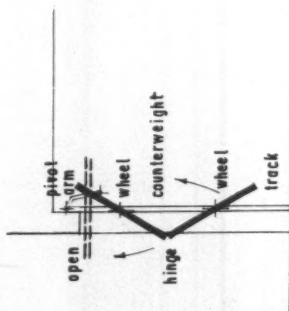
MODEL SA 35
has an output of 30,000 B.T.U.'s constant loading suitable for up to 6 radiators (150 sq. ft. surface) and 30 gallons of hot water.

MODEL SA 25
has an output of 15,000 B.T.U.'s constant loading suitable for 2 to 3 radiators (50 sq. ft. surface) and 30 gallons of hot water.



SKILL

Name of Manufacturer.	Balance and Track position.	Construction.	Clearances and Locking System.	Size and Weight.	Prices: ex Works.	Comments.
19 Westland 'Welroll' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley. Vertical tracks at jambs.	Doors of aluminium horizontally fluted sheets set in steel channel runners; crossed braced on inside. Alternatively door divided into small panels fitted with glass or aluminium.	Headroom above lintel 12" for doors up to 17', 15" for doors over 17' high. Side wall clearance 12". Slam type catch with locking by padlock.	Maximum size 24' x 24'.	Opening greater than 180 sq. ft. approx. 23/- per sq. ft. with 16 g. aluminium flat sheets or 22/6 elec. operated, steel flat sheets or 25/6 electrically operated. Wicket door incorporated at extra cost of £15.	Particularly suitable for openings of tall proportions, large industrial openings, Fire Stations. Projects beyond face of lintel in open position. Hand or electrically operated. Cylinder type deadlock can be fitted as an extra. Clear height of opening reduced by 9" 12" according to size of door.
20 Westland 'Welpak' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley. Vertical tracks at jambs.	Door of 14 gauge light alloy panels 18" deep, interlocking at top and bottom edges. Heavy steel jamb guides.	Side wall clearance with drive unit 2' 1" minimum. Side wall clearance idler unit side, 6" minimum. Depth required inside building 4' min. above lintel level to accommodate drive mechanism. Headroom required lintel to ceiling 2' 7".	Maximum size: 24' wide and 20' high.	Examples: 300 sq. ft. door at approx. 22/6 per sq. ft. 400 sq. ft. door at approx. 29/- per sq. ft. Electrical equipment, £50.	Panels stack into group at level of lintel. Operated by hand chain or motor control. Spiral winding drum compensates increased weight as panels stack. Speedy operation.
21 Westland 'Welroll' Westland Engineers Ltd, Yeovil, Somerset.	Spring torsion operating cable drums at either side. Vertical track with curve at lintel level into rear horizontal.	Constructed of light alloy extensions forming horizontal panels about 2' deep. Panels hinged together. Units run on ball raced wheels in vertical and horizontal tracks. Panel infilling either 14 s.w.g. light alloy or $\frac{1}{8}$ " perspex.	Headroom 20". Side wall clearance: 1' 1" one side, 6" other side.	Maximum size: 15' high and 12' 6" wide.	Approx. £2/10/0 per sq. ft. delivered and erected.	Door can be automatically opened by applying additional torsion to the spring when door is closed, giving high speed operation. Particularly suitable for emergency services. Not recommended for small domestic garage on cost.
22 Westland 'Weltil' Westland Engineers Ltd, Yeovil, Somerset.	Counterweight and pulley. Sloping inwards and horizontal tracks.	Aluminium construction similar to 'Welrise' and 'Weltil'. Smaller type door for openings up to 8'. Opening 8' 1" to 12' have central box section, larger type door has steel frame.	10" at side, 6" headroom. If weight positioned on rear wall side wall clearance 3 1/2" to 4" required.	Small doors maximum size 12' wide and 10' high. Large doors maximum size, 16' wide and 12' high.	From £27/14/5 + 5% for 7' x 7' 6" to £47/7/1 + 5% for 7' 6" x 12'.	Door contained within building line during operation and in open position. Extra cost of 15/- per side for rear hung cables.



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THE INDUSTRY

Catalogues

There is a healthy growth of interest amongst manufacturers in producing useful catalogues for architects. Amongst the factors which are stimulating them, no doubt, is the annual competition for manufacturers' technical literature sponsored by the RIBA and the Building Centre. This year's competition showed that standards are rising, though not yet high enough. Most of the award winners had the stamp of sound design. The highest award went to Alumin Building Components Ltd. for their aluminium double hung window catalogue, referred to in these columns in March, 1961.

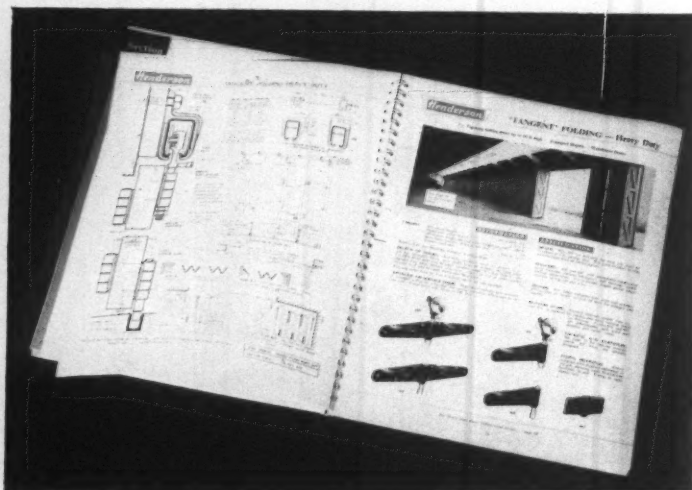
Two manufacturers' catalogues which recently have been produced are worth comment for their differing approach. Hendersons, whose sliding door gear is a household word amongst architects, have produced an admirably comprehensive catalogue, 1. It has a spiral binding and opens flat on the drawing board. Details of their various gear are presented in such a way that users will be able to extract all the information they need easily and quickly. The drawings are clear and informa-

Report E/RR/11) deals with the behaviour of timber under sustained loads. Previous research in this country was carried out by W. W. Barkas who considered timber as a gel and in Russia by Belyankin and Ivanov who viewed it as a viscous-elastic and viscous-elastic-plastic medium. The Russians make the assumption that there is an initial stress below which no plastic deformation occurs. This stress they define as the 'limit of plastic flow' (L.P.F.). Tottenham, in this study, regards timber as a viscous-elastic material and he examines various criteria for the onset of plastic flow. He suggests that the Coulomb Hypothesis—that breakdown occurs when a critical strain is reached—agrees with present experimental data and on the basis of this hypothesis puts forward a rapid method of determining the sustained load strength of timber.

The report is available from the TDA, price 3s. 6d.
Timber Development Association Ltd.,
21, College Hill, London, E.C.4.

Timber preservative treatment

Most people concerned with the use of timber are aware of the value



1, catalogue of sliding-door gear, produced by P. C. Henderson Ltd.

tive and an intelligent use has been made of photographs of components. The catalogue fails, however, in one or two important respects. The next time the manufacturers are producing one they should (1) make it A4 size, (2) put an SFB number on the top right-hand corner of the cover and (3) improve the index.

P. C. Henderson Ltd., Tagent Works, Harold Hill, Romford, Essex.

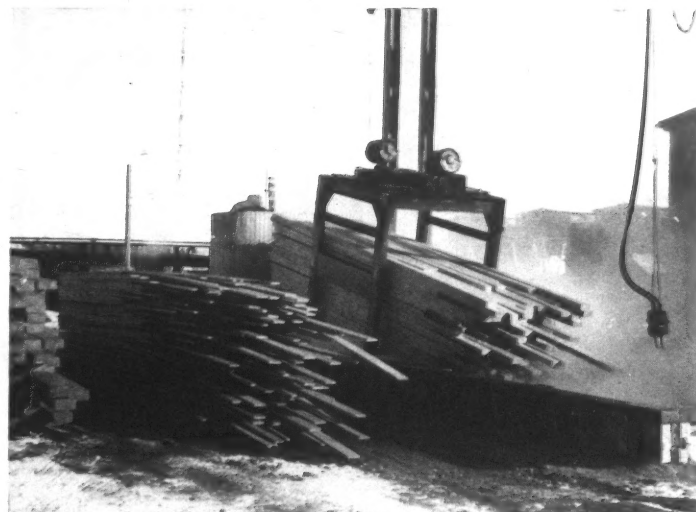
The second catalogue is on Jon-windows metal windows. It is a bound volume and is more than just a catalogue, containing, for example, an interesting account of how the windows are made. It is to A4 size and the designers have obviously given thought to the type and extent of information which an architect needs. The book opens flat at any page and the drawings which are to scale are most useful. Points against the catalogue, however, are the absence of an SFB number and the inclusion of too many quite useless photographs.

John Williams of Cardiff Ltd., Curran Road, Cardiff.

Strength of timber

A recent publication by the TDA, *The Sustained Load Strength of Timber* by H. Tottenham (Research

of preservative treatment against decay, fungal and insect attack. Adequate penetration into the wood is essential if full protection is to be achieved. A new process using a preservative called 'Timbor' is claimed by its manufacturers to ensure 100 per cent impregnation. 'Timbor' is a form of boron having a high solubility. Boron has been used as a preservative for many years in Australia and New Zealand. The process used by the manufacturers in this country is diffusion impregnation, the principle of which is that a concentrated soluble chemical when placed in contact with a wet medium will tend to move into the wet medium until the chemical is in solution equilibrium throughout the whole volume of the wet medium. Timber cut from the log has a high moisture content. In softwoods it ranges from 100 per cent to about 180 per cent. Fresh sawn timber, retaining this moisture is immersed in a strong 'Timbor' solution, 2, and a quantity of 'Timbor' is deposited on the surface. It then diffuses through the timber, the time taken completely to impregnate the timber depending on temperature, density of timber, moisture content and concentration of preservative solution.



2, fresh sawn timber being lowered into Timbor preservative solution.

As a general guide complete diffusion is usually achieved in two weeks for timber 1 in. thick, six weeks for 2 in. thick timber and nine weeks for 3 in. thick timber. It is important, of course, that drying of the timber be restricted during diffusion. Full details are available from the manufacturers.

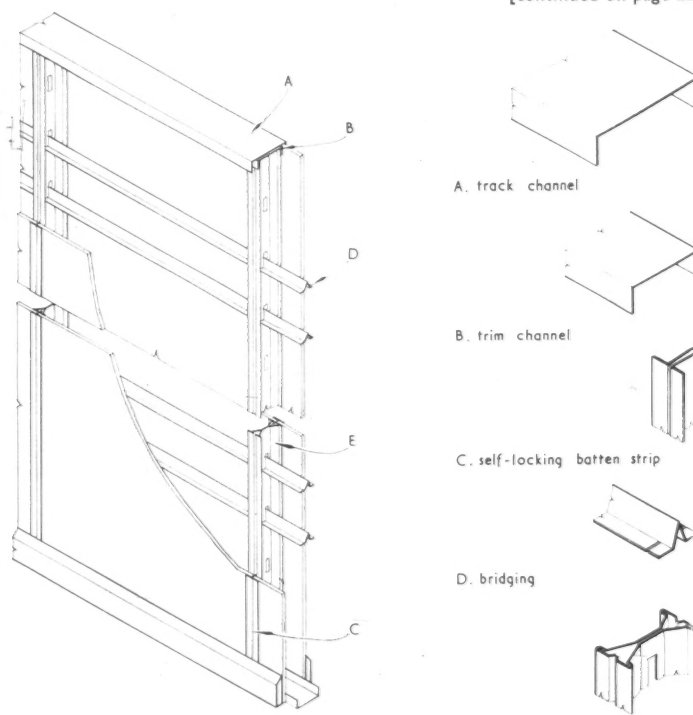
Borax Consolidated Ltd., Borax House, Carlisle Place, London, S.W.1.

Partition system

A lightweight partitioning system first developed in the United States by the Penn Metal Company Inc. has been introduced here by The Expanded Metal Company. The system is called *Permalock*. All framing components are metal and assembly closely follows that of a traditional timber stud frame partition. 3. Erection procedure is as follows: (1) mark out partition runs and door openings; (2) fix track channel to floor; (3) fix track and trim chan-

nels (one inside the other) to ceiling; (4) fix trim channel and stud to existing wall against which the partition abuts; (5) set studs into floor and ceiling tracks at 24 in. centres and clip intermediate bridging into studs; (6) position and secure door frame to stud framing; (7) cut wallboard panels to length and shape and insert them between track and trim channels at ceiling; (8) fit T batten strips firmly into studs between wallboard panels; (9) fix architraves and skirtings. Partitions can be taken down and rearranged quite easily, the only making good being at the fixings of floor and ceiling tracks. Slots in the studs enable wiring conduits and pipes to pass through although all metal members may be cut with a hacksaw for this purpose. Price is around 6s. per sq. ft. for the standard partition having 1/2 in. plasterboard linings with an emulsion paint finish. For a finish comprising plastic faced board the price is from 10s. to 11s. per sq. ft.

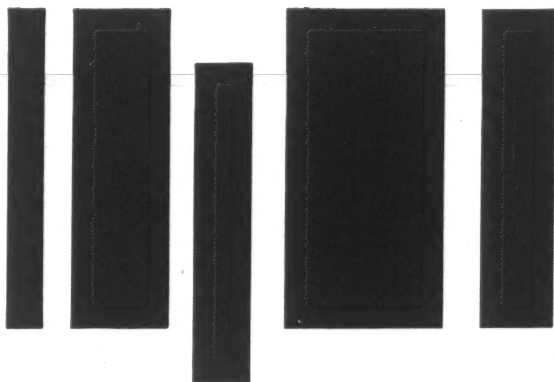
[continued on page 220]



3, cut-away section of the Permalock partition.

an exhibition

ceramic design in modern building

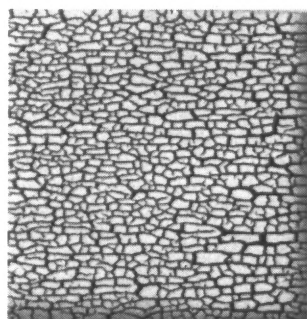


CERAMIC CONSULTANTS, a group of young ceramic manufacturers, chemists, and designers, offer a new service producing designs, prototypes and products for: architects and town planners—contract furnishers and designers—building contractors and industrial developers—landscape gardeners.

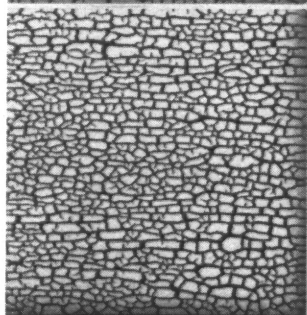
To illustrate this, the group have pleasure in inviting you to an exhibition of products and ideas to be held at the Tea Centre, Lower Regent Street, London, S.W.1, which will be open from Wednesday September 6th. until Friday September 15th. 10.0 a.m.—6.30 p.m. and includes: ceramic reliefs and murals—wall plaques and lamps—tiles: interior and exterior; relief and patterned; plain and decorated—vases and tableware—pottery convectors—pottery screens—garden terracottas and barbecues—fireplaces and tables.

A limited number of tickets is available for the official opening at 11.0 a.m. on Wednesday September 6th. and can be obtained on application to:

**CERAMIC CONSULTANTS 36 Thayer Street,
London, W.1. WEL 0398—HUN 2488.**



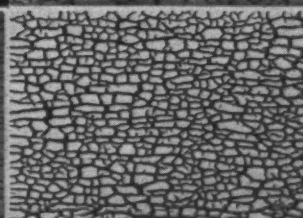
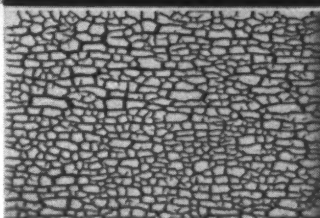
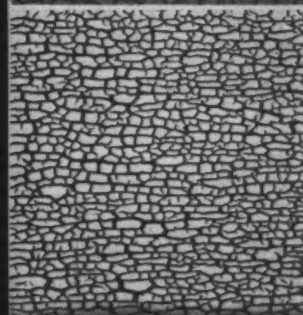
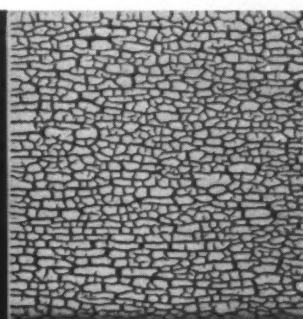
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TILES**

Made by Candy & Company Limited, the sole manufacturers of the Devon Fire. Write for further information and catalogue to: Department R8, Candy & Co. Ltd., Newton Abbot, Devon.

Devon now offer a new glazed tile with a natural crackle pattern, that costs no more than plain coloured tiles. The pattern form has a directional flow which can be used horizontally or vertically. There is a wide choice of background colours and it offers exciting possibilities in design for both indoor and outdoor work. Available in all standard sizes of tiles (those shown are 6" round edge and fittings; $\frac{1}{4}$ " and $\frac{5}{8}$ " thick. The $\frac{5}{8}$ " tile is suitable for exteriors.



continued from page 218]

The Expanded Metal Company service covers the complete job—design, estimate and installation. The Expanded Metal Co., Ltd., Burwood House, Caxton Street, London, S.W.1.

Rectangular hollow sections

Round section hollow tube has been used structurally for many years now. Its advantages include weight saving and savings in painting as there is less surface area than on rectangular sections. Square and rectangular section tubes are now being produced and details concerning properties and sizes are contained in a brochure entitled *Rectangular Hollow Sections* put out by the manufacturer.

Stewarts & Lloyds Ltd., Broad Street Chambers, Birmingham, 1.

CONTRACTORS etc

Industrial Offices and Laboratories, Harston, Cambridgeshire. Architects: Edward D. Mills & Partners. General contractors: Rattee & Kett Ltd. Sub-contractors: Heating, plumbing, ventilation: Richard J. Audrey Ltd. Partitioning: Tenon Contracts Ltd. Asbestos cement panels: The Universal Asbestos Manufacturing Co. Asphalt roofing and woodblock flooring: Cambridge Asphalte Co. Cork tiles and Nairns lino tiles Poly-flor p.v.c. sheet: The Lino Tile Co. Insulation board and acoustic tiles: Celotex Ltd. Patent glazing: The Standard Patent Glazing Co. Granolithic flooring: Johnson Floor Co. Steelwork: Brownlie & Murray Ltd. Roof screeding: Isocrete Co. Bricks: Fisons Ltd.; Cape Building Products Ltd. Metal windows: John Williams of Cardiff Ltd. Concrete roof lights: John Healey (London) Ltd. Asbestos cement roof decking and cladding: W. M. Walker & Co. Pipework: Prodorite Ltd. Lift: Hammond & Champness Ltd. Wallpaper: The Wallpaper Manufacturers Ltd. Sanitary fittings: Stitsons Sanitary Fittings Ltd. Balustrading and ladders: Allen & Greaves Ltd. Ironmongery: Yannedis & Co. Illuminated sign: Pearce Signs Ltd. Royal Coat of Arms plaque and company's name panel: E.G.C. Ltd. Flush doors: W. Lawrence & Son Ltd. Laboratory fittings: F. J. & T. E. Prime. Light fittings: Troughton & Young (Lighting) Ltd.; Thorn Electrical Industries Ltd.; Falk Stadelmann & Co.; G.E.C. Ltd.; Rotaflex (Great Britain) Ltd.; Merchant Adventurers of London Ltd. Carpets and chairs: Catesbys Contracts & Export Ltd. Boardroom and executive furniture: Knoll International Ltd. Library shelf fittings: Savage & Parsons Ltd. Paints: Lewis Berger (Great Britain) Ltd.; Wareite plastic laminates: Bakelite Ltd. Staircase handrails: Marley Tile Co.

Research Laboratories at Passfield, Hampshire. Architects: Architects' Co-Partnership. General contractor: Bovis Ltd. Sub-contractors: Heating, ventilation, electrical drainage, plumbing: Matthew Hall & Co. Reinforced concrete: Rom River Reinforcement Co. Steelwork: Oxford & Cowley Ironworks Ltd. Venetian and cloth blinds: London Blinds Ltd. 'Plastapac' finish to thermacoust slabs: R. A. Brand & Co. Boiler house chimney: Danks of Netherton Ltd. Woodacoustic ceilings: Coronet Engineering Ltd. Asbestolux ceilings: Anderson Construction Co.

Slate cills: Bow Slate & Enamel Co. **Sliding folding shutter door:** Acme Metal Works. **Hardwood and p.v.c. flooring:** Acme Flooring & Paving Co. **Metal and chain link fencing:** J. B. Corrie (Flexstella) Ltd. **Concrete roof and floor slabs:** Concrete Ltd. **Galt glass rooflights:** Allan Blunn Ltd. **Ironmongery:** Alfred G. Roberts Ltd. **Laboratory furniture:** A. Gallenkamp & Co. **Paint:** Leyland Paint & Varnish Co. **Composite felt roofing:** William Briggs & Sons Ltd. **Sanitary fittings:** John Bolding & Sons Ltd. **Metal windows:** William & Watson Ltd. **External and internal joinery:** Constructional Units Ltd. **Tarmac roads:** Tarmac Roadstone Ltd. **Glass:** Faulkner Greene Ltd. **Monogranolithic flooring:** Stuart's Granolithic Co. **Furnishings:** Bath Cabinet Makers Ltd.; Conran Contracts Ltd. **Planting and seeding:** J. Waterer Son & Crisp Ltd.

SS Canberra. Naval architect: John West. Co-ordinators of interior design: Sir Hugh Casson, Neville Conder and Partners in association with McInnes Gardner and Partners. Shipbuilders: Harland & Wolff Ltd. Sub-contractors: 1st class dining room, lido, playground, cinema, tourist class dining room, lounge, long bar, pool café, nursery, dance space: Heaton Tabb & Co. Teenagers' room, tourist class stairways and entrance: Fredk. Sage & Co. 1st class lounge and suite rooms: White Allom Ltd. 1st class stairways and entrances: H. H. Martyn & Co. Cabins-de-luxe, 1st class observation lounge: Heal's Contracts Ltd. 1st class shop and hairdressing salon, tourist class shop and hairdressing salon, Bureau Square: William Mason & Son Ltd. 1st class swimming pool, tourist class swimming pool: A. de Cecco Ltd. Blind/window units (1st class): Accordo Blinds Ltd. Combination washers and tumble dryers: Acme Domestic Equipment Ltd. Stainless steel sinks, cereal bins and racks: Associated Metal Works Ltd. Linoleum: Barry, Ostlere & Shepherd Ltd. Leather for furniture (senior officers' accommodation): J. Crisp & Son. Sound insulation: Fibreglass Ltd. Electric Alarm Bells: Gent & Co. Tourist berth ladders (aluminium): Gravity Ladders Ltd. Refrigeration plant, electric lifts: J. & E. Hall Ltd. Steel roller shutters: Haskins. Plastic faced plywood, furniture, glass fibre, shower units and window boxes: Heaton Tabb & Co. Acoustic ceilings: W. H. Heywood & Co. Melamine plastics: Holoplast Ltd. Venetian blinds: Horsley, Smith & Co. (Hayes) Ltd. Soft plastics (cynide): ICI Ltd. Linoleum: The Linoleum Manufacturing Co. Timber for decorative veneers: Wm. Mallinson & Sons Ltd. Marinite: Marinite Ltd. Plastic hand rail: Marley Tile Ltd. Electric clocks: Thomas Mercer Ltd. Plastics: Perscorp Products (GB) Ltd. Master key system, cabin fittings, hardware: N. F. Ramsay & Co. Toilet fittings: Roanoid Ltd. Sanitary outfit: Shanks & Co. Furniture: Shapland & Pether Ltd. Galley gear: W. M. Still & Sons Ltd. Sound powered telephones: The Telephone Manufacturing Co. Perspex baths: Thermo Plastics Ltd. Glass fibre decorative panels: Verplex Ltd. Teak parquet flooring: Vigers Bros. Everflex wall covering: Bernard Wardle & Co. Veneers: John Wright & Sons (Veneers) Ltd.; Duprint Ltd. Teak chairs: Finmar Ltd. Tables and chairs (tourist class ballroom): The Edmonton Panel Co. Cane furniture, etc.: G. W. Scott & Sons Ltd. Settees (1st class lido café): Hille of London Ltd. Tables and chairs: Wood Brothers. Blinds (1st class lido café): Sandersons Ltd. Walls and ceiling: Blue Birds Eye Maple veneer: W. I. Brine & Sons Ltd. Rubber flooring (1st class

restaurant): The Runnymede Rubber Co. Dance floor, Burma teak strip, Canadian Hardrock maple strip: A. Macdougall & Son Ltd. Rubber flooring (tourist class restaurant, smokers room and tourist and 1st class nursery and cardrooms): Leyland & Birmingham Rubber Co. Vinyl tiles: Humaseo Ltd.; Semtex Ltd. Deck covering tiles: Robert Kirk Ltd. Flooring (teenagers' room): Korkoid Ltd. Plastics: ICI Ltd.; Formica Ltd. Fibreglass ceilings, pillar casings: Bristol Aeroplane Plastics Ltd. Cane blinds (1st class restaurant): Tidmarsh & Sons. Armour plate doors: Steel's (Contractors) Ltd. Cineprojection equipment: Rank Organisation Ltd.

SS Oriana. Naval architect: Charles Morris. Co-ordinators of interior design: Design Research Unit. Shipbuilders: Vickers-Armstrongs. 1ST CLASS GALLERIES: Main sub-contractors: Waring & Gillow (Contracts) Ltd. Carpet: Wilton Royal Carpet Factory Ltd. Settees and easy chairs: Hille of London Ltd. Small chairs: Russell Furnishings Ltd. Tables and stools: Beresford & Hicks Ltd. Chair covering: Old Bleach Linen Co. Curtains: Edinburgh Weavers. Lamp standards: Dernier & Hamlyn Ltd. Pottery bases: Chelsea Potteries. 1ST CLASS BALLROOM: Main sub-contractors: Waring & Gillow (Contracts) Ltd. Carpet: Wilton Royal Carpet Factory Ltd. Settees and easy chairs: Hille of London Ltd. Settees and easy chairs (outboard): Heals Ltd. Small chairs: Russell Furnishings Ltd. Tables and stools: Beresford & Hicks Ltd. Curtains: Edinburgh Weavers. Chair covering: Arthur H. Lee & Sons Ltd. Decorative glass screen: London Decorative Sand Blast Co. Metalwork: Comyn Ching. Light fittings: Dernier & Hamlyn Ltd. Piano: Danemann & Co. MONKEY BAR: Main sub-contractors: Waring & Gillow (Contracts) Ltd. Carpet: Wilton Royal Carpet Factory Ltd. Sectional settees: Hille of London Ltd. Easy chairs: Context. Small chairs: Russell Furnishings Ltd. Tables and stools: Beresford & Hicks Ltd. Bar stools: Waring & Gillow. Chair covering (leather): Bridge of Weir Leather Co. Chair covering (verandah): Donald Bros. Light fittings: Dernier & Hamlyn Ltd. Plants: Longmans. OCEAN BAR (TOURIST CLASS): Main sub-contractors: Bath Cabinet Makers Ltd. Chairs: Wrinch & Co. Coffee sideboards and seating: Esavian Ltd. Tables: Beresford & Hicks Ltd. Chair coverings and curtains: Donald Bros. Light fittings: Dernier & Hamlyn Ltd. Decorative bar front: Waverite Ltd. Decorative recesses: Frank W. Clifford Ltd. Sliding folding wood windows: Esavian Ltd. GENERAL 1ST CLASS AND TOURIST ROOMS: Fluorescent lighting: General Electric Co. Bar and table tops, etc.: Formica and Waretite Ltd.

Factory, Uxbridge. Architects: Tayler and Green. Foundations (factory): Pynford Ltd. Foundations (extension): Precast Utilities (London) Ltd. Building work: White Bros. General contractors (west site and office site): E. J. G. Morgan Ltd. Sub-contractors: Bricks: Aldeburgh Brickworks Ltd.; Fison Ltd. Dricrete blocks: Crendon Concrete Co. Rooflights: Williams & Williams Ltd. Steelwork: R. Stevenson Ltd. Reinforcement: BRC Engineering Co. Windows: Crittall Manufacturing Co. Metal door frames: H. Hope & Sons Ltd. Sliding doors: P. C. Henderson Ltd. Sanitary fittings: Shanks & Co.; W. & G. Sissons Ltd. Thermostatic mixing valves: Walker Crossweller & Co. Light fittings: Merchant Trading Co.; Thorn Electrical Industries Ltd.; A. Imhof Ltd.; Courtney

Pope Ltd.; Finmar Ltd.; GEC Ltd.; Troughton & Young Ltd. Water heater: Aidas Electric Ltd. Heating system: Tropicalair Ltd. Water storage tanks: Turners Asbestos Cement Ltd. W.C. partitions: Venesta Ltd. Paints: Walpamur Co. Exterior colour: Cement Marketing Co. Metal fittings, special joinery, rainwater goods, electrical installation: Imhofs Ltd. Stairs: Precasters Ltd. Doors: Adamite Ltd. Electric fans: Vent Axia Ltd. Furniture: Heal & Son Ltd.; Storeys & Co.; Imhofs Ltd.; Catesby Ltd.; Finmar Ltd. Acoustic tiles: Merchant Trading Ltd. Wallpaper: Wallpaper Manufacturers Ltd. Pre-cast paving: Noelite Ltd. Pre-cast kerbs: Girling Ferro-Concrete Co. Slate threshold: Bow Slate & Enamel Co. Underfloor heating: Panelec Ltd. Entrance hall clock: Gent & Co. Venetian blinds: Crittall Manufacturing Co. Pine wall facing: Venesta Ltd. Eggerate ceilings: Lumitron Ltd.

College of Further Education, St. Albans.

Architect: G. C. Fardell, Hertfordshire County Architect. General contractors: William Sindall Ltd. Sub-contractors: Structural frame, gates, balustrades and staircase: Hills (West Bromwich) Ltd. Blinds: Tidmarsh & Sons. Built-in furniture and book lockers: E. C. Hodge. Bricks: E. H. Smith Ltd. Fibrous plaster ceilings: Claridges (Putney) Ltd. Curtains: Super Theatre Furnishings. Flush doors: Jayanbee Joinery Ltd. Cork floors: Cork Insulation & Asbestos Ltd. Terrazzo floors: Art Pavements & Decorations Ltd. Wood block and thermoplastic flooring: Hollis Bros. Ltd. Flues: Chimneys Ltd. Internal telephones: The Reliance Telephone Co. Stage lighting: W. J. Furse & Co. Window gearing: Teleflex Products Ltd. Changing room benches: A. J. Binns Ltd. Drinking fountains: A. F. Collins & Co. Gymnasium equipment: Spencer, Heath & George Ltd. Heating: Weatherfoil Ltd. Ironmongery: James Gibbons Ltd. Lavatory partitions: Flexo Plywood Industries Ltd. Light fittings: Falk Stadelmann & Co.; Fluorel Ltd. Paints: Docker Bros. Ltd.; Vitretex Ltd. Roof, structural: Universal Asbestos Manufacturing Co. Rooflight: S. Warner & Son. Rainwater goods: High Duty Alloys Ltd. Sanitary fittings: Adamsez Ltd. Mechanical vents: Greenwoods & Airvac Ventilating Co. Walls, internal: J. Gliksten & Son (Glinex). Walls, external: Vulvan Plastics (Mfg) Ltd. (infill panels). Curtain walling: Quicktho Engineering Ltd. Sliding folding metal doors: Bolton Gate Co. Floor blocks: Kingsbury Concrete Ltd. Sliding folding partition: Silent Gliding Doors Ltd. Lift-over metal door: Westland Engineering Ltd. Dust and fume extract installation: Keith Blackman Ltd.

Trade Union Offices, Hendon. Architects:

C. Wycliffe Noble & Partners. General contractor: W. H. Gaze & Sons Ltd. Sub-contractors: Reinforced concrete substructure: Demolition & Construction Co. Steelwork: Redpath Brown & Co. Asphalt: Permant Ltd. Reinforced concrete floors: Siegwart Floor Co. Heating installation: Troughton & Young (Heating) Ltd. Asbestos spray: Wm. Kenyon & Sons. Slate and marble linings: Art Marbles Stone & Mosaic Co. Metal window: W. James & Co.; Quicktho Engineering Co. Suspended ceilings: Anderson Construction Co. Terrazzo paving: Marriott & Price. Joinery: Samuel Elliott & Co. Lifts: Bennie Lifts. Block flooring: Bennetts Wood Flooring Ltd. Roof lights: T. & W. Ide Ltd. Canopy: Ward & Co. (Letters) Ltd. Ironmongery: Alfred G. Roberts Ltd. Sanitary fittings: Adamsez Ltd. Light fittings: Merchant Adventurers.

